

An Anatomical Study of Manipura Chakra and Its Clinical Significance

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Type of Publication: Original Research Article

Conflicts of Interest: Nil

Abstract

Yoga and Tantra represent profound medical sciences that aim to connect the individual self with the universal divine. Central to their practice is the pursuit of Yoga's primary goal, Chitta Vritti Nirodha, achieved through control of the conscious and autonomic systems, facilitated by the intricate network of Chakras, Nadis, meridians, and energy waves. These Chakras serve as energy centers, receiving and transforming Prana, vital energy, and governing a wide array of bodily functions. This study delves into the Manipura Chakra, the third Chakra, located in the solar plexus region, and its potential anatomical and clinical significance.

The research aims to explore the correspondence between Manipura Chakra and the coeliac plexus, based on their positional, structural, and functional similarities. Anatomical dissections and comprehensive literature reviews were conducted, bridging ancient wisdom with modern anatomy.

The Manipura Chakra's resemblance to the coeliac plexus is striking, with both entities positioned near major blood vessels, exhibiting sun-like structures, and governing the functions of the gastrointestinal tract. The Chakra's proper functioning leads to enhanced digestion, vitality and passion while an imbalance or blocked Chakra can result in malnourishment and health complications.

Keywords: Nabhi Marma, Chakra, Samana Vayu, Manipura, Mudra, Plexus

Introduction

Yoga and Tantra are the medical sciences of linking the individual self with universal God. Yogi tries to attain main prime aim of Yoga Chitta Vritti Nirodha through the practice of Yogic procedures; this aim is only possible to be achieving by control of conscious and autonomic system, the main structural components of systems the Chakras, Nadis, meridian, (strange flows and energy wave). These Chakras also indicate very important anatomical centers / plexus. On concentrating and regulating them. These may encourage body-brain balance and more substantial equilibrium to reaches the highest living energy.

Chakras are energy centres; they function like receivers and transformers of the various forms of Prana, Through the Nadis, the Chakras receive the vital energy and transform it into the frequencies needed by the various areas of the

physical body for the maintenance and development. We have centres in our body that are the conductors for this energy. These energy centres are called Chakras (wheels of light). Different Acharya have mentioned different Chakras, some accept seven major Chakra Centres and some other consider Shat Chakras and some other consider more minor ones. Seven Chakras are situated from base of spine to the top of head and each has special function. These are psychic centres of the astral body governing a group of functions."

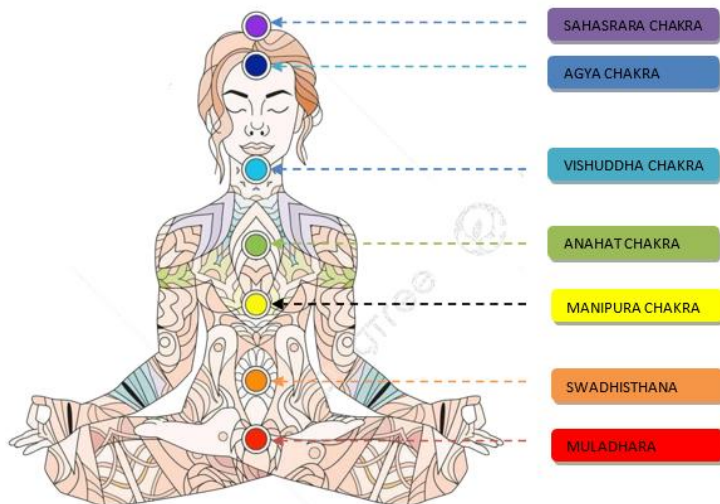


Figure 1: Chakra in body

Manipura, the "resplendent gem," is the name of the fiery third Chakra. The fiery third Chakra is located in the area of the solar plexus, navel, and digestive tract. This Chakra, which is associated with the yellow color controls digestion and metabolism as well as the forces of change, warrior energy, and self-esteem. A strong third Chakra encourages a "get-up-and-go" mentality, which makes it simpler to take risks and stand up for oneself. This Chakra is also associated with deep belly laughter, warmth, sense and the vitality gained from unselfish service.

There are three unique centers in Manipura: Saddala(also known as Sushumma-Chakra), Garbha (in the Garbha Sthana), and Kundalini (in the region abutting the waist and presided over by fire). Aside from the basic names and hazy location, we don't uncover any further information concerning these psychic cars. The Manipura is located in the navel and has Rudra as its deity (Devata). Above this is said to exist the so-called Linga-Chakra, about which no details are given. Manas' seat of mind is higher still, in the pericarp of the Anahata. Present review is to highlight the Manipura Chakra along with its regional and functional anatomy and identifying its clinical significance.

Material and method

This study was aimed to clarify the existing debates regarding "An Anatomical study of Manipura Chakras and its clinical significance", Accordingly deliberate attempt is made by considering various references from Samhitas, related textbooks of Ayurveda, Yogic and Tantrik literature, journals, research papers along with various databases and corroborating it with supportive references from modern anatomy, physiology and clinical pathology, consequently cadavers were dissected to understand the structures concerned.

Anatomical aspect of Manipura Chakra

These Dalas represent the small plexuses present around the coeliac plexus formed by crisscrossing of posterior vagus nerve and greater and lesser splanchnic nerves in the umbilical vicinity. The Manipura Chakra is supposed to be equivalent to coeliac plexus in the body. By the dissection it was seen that the umbilical position in adult is at the level of the disc between the third and fourth lumbar vertebrae, which is the position of inferior mesenteric plexus but according to its description and functions coeliac plexus is more suitable to term as Manipura Chakra, The coeliac plexus is the largest major autonomic plexus, sited at the level of the twelfth thoracic and first lumbar vertebrae. It is a dense network uniting two large coeliac ganglia and surrounds the coeliac artery and the root of the superior mesenteric artery. It is located posterior to the stomach and lesser sac, anterior to the crura of the diaphragm and the beginning of the abdominal aorta, and lies between the suprarenal glands. The plexus and ganglia are joined by the greater and lesser splanchnic nerves and branches from the Vagus and Phrenic nerves. The plexus extends as numerous secondary plexuses along adjacent arteries. The coeliac plexus is connected to, or gives rise to, the phrenic, splenic, hepatic, superior mesenteric, suprarenal, renal and gonadal plexuses.

Manipura Chakra/Nabhi Chakra vis a vis Samana Vayu

Manipura Chakra, also known as the Nabhi Chakra in Ayurveda, is the seat of Samana Vayu. Samana Vayu is a Vata subtype that governs the transport and circulation of numerous substances throughout the body. In Sanskrit, the term "Samanata" means "all around" or "pervading," implying that Samana Vayu circulates around the navel or umbilicus, known as the Nabhi. Samana Vayu regulates the right distribution of food, liquids, inhaled substances, blood, and the three Doshas (Vata, Pitta, and Kapha) throughout the body. It is mostly around the Antaragni, which refers to the digestive fire or metabolic activity in the gastrointestinal tract. Samana Vayu traverses the entire Kohstha, including the stomach system. The gastrointestinal system act on the basis of the contraction and relaxation of the smooth muscles that line its walls. The autonomic nervous system, which consists of sympathetic and parasympathetic nerve fibers, regulates these muscle actions. Some of the acts performed by Auerbach's and Meissner's plexuses, which are part of the autonomic nervous system, can be termed Samana Vayu functions. It is thought to be found in the Nadis (subtle energy pathways) of the Dalas (petals) of the Manipura Chakra. Understanding and balancing the roles of various energies, such as Vata, Pitta, and Kapha, as well as their respective Chakras, is vital in Ayurveda for fostering overall well-being and health.. Manipura Chakra and the role of Samana Vayu inside it is thought to be important in maintaining normal digestion, nutrient assimilation, and general metabolic balance in the body.

Manipura Chakra vis a vis Nabhi Marma

Marma is referred as the Nabhi Chakra by Ayurvedic Acharyas. The Sira, i.e., vessels, nerves, and lymphatics, anatomically form this Chakra. The abdominal aorta, inferior vena cava, and vagus nerve serve as axles for this Nabhi Chakra, or wheel. The branches and plexuses of these act like spokes on this wheel. Important organs such as the liver, spleen, kidney, pancreas, stomach, duodenum, jejunum, ileum, large intestine, and so on are placed on the rim of this wheel or sphere. Sushruta has labelled Nabhi Marma as Sadya Pranahara Marma because this incorporates the main anatomical structures as Sira i.e. veins and arteries the second condition to understand the clinical significance of Sadya

Pranahara Marmas here may be neurogenic shock; and the third condition may be septic. According to Ayurveda, the body is a holistic system, and imbalances in any portion of the body, including the Nabhi Marma, can lead to the development of numerous health disorders. According to Ayurvedic scriptures, a disruption in Nabhi Marma can cause digestive issues, hormone imbalances, abdominal discomfort, and even emotional disturbances.

Yoga's Impact on the Manipura Chakra Entity

Yoga means "union" and it is supposed to be the union with the cosmos, mind, and body. Although Yoga has been demonstrated as beneficial in the treatment of many chronic and incurable conditions, the therapeutic impact of Yoga depends on the regularity of its practice. Such treatments focus on both mental and physical aspects of therapy, and it is believed that when one Chakra performs properly, the other Chakras also come into balance, however, when one Chakra creates chaos, the entire body suffers from problems and dysfunction. Hatha Yoga significantly stimulates and balances the Chakras. Furthermore, constant practice aids in the removal of impediments and excess energy. Each Chakra influences a person's behavior and physical posture.

Tantra practitioners purify their bodies and minds through Asanas, Pranayama, Bandhas, and Mudras. This method necessitates the activation of the Chakras. To finish an Asana, one must stand still for a few minutes or more and breathe slowly. This gives a relaxing impact on the mind, reduces stiffness, strengthens muscles, improves skin, improves lung functions, boosts the activity of the digestive and excretory organs, and gives a moderate massage for the internal organs, muscles, endocrine glands, and provides mental satisfaction. Because of these features, Asanas are a good premeditation practice. Yoga, like Ayurveda, aims to raise Prana levels in order to improve lifestyle choices and treat ailments.

According to scientific studies, incorporating some Yogic practices may improve the efficiency of the majority of Ayurvedic treatments. Anatomically, these Chakras are wheels of neurovascular circulation channels linked to the connective tissue of the human body dispersed to various organs and structures. These nerve wheels are known as plexuses, and these are complex inner communications between the funiculars of neighboring nerves. The effect of Yoga on this psycho-physiological system via the Chakra is schematically depicted below.

Discussion

Tantrika Acharyas as explained the tract/path of Mana by which Mana controls the parts/organs of the body and for this purpose they again coined a term "Nadi" and have also explained the meeting points or areas (plexuses) of these Nadis in the body and termed them as "Chakras".

The Kundalini power can be successfully channelized through successive steps of various Chakras. Due to these, one can control his autonomic activities & sensory inputs and acquire skill & power of mind, according to modern sciences these Chakras can be equated with various autonomic ganglia, like coeliac ganglia to which both sympathetic and parasympathetic nerves (can be compared to Ida and Pingala).

Manipura Chakra located in the area of the solar plexus, navel, and the digestive system; the fiery third Chakra is called Manipura i.e. the "resplendent gem associated with the yellow colour. This Chakra is involved in self-esteem, warrior energy, and the power of transformation; it also governs digestion and metabolism.

Brahmavidyopnishad stated that Nabhi Chakra is centre of Jnana Sakti and site of Sumya and Agneya powers which is coherent to the concept that Manipura Chakra is the entity responsible for heat of the body and centre of digestion regulation through nervous and endocrine pathway. These both create sound body functioning sound mind and produce capacity to engross knowledge.

Discussion on Cadaveric Study

Dissection was done to better understand the structures involved, with references from Samhitas related to Yogic and Tantrik literature, Ayurvedic textbooks, journals, and research papers, as well as various databases, and corroborating these with supportive references from modern anatomy, physiology, and clinical pathology. Manipura Chakra has 10 Dalas and coeliac plexus has around 10 subdivisions. This similarity in branching pattern is a key to correlate Manipura Chakra with coeliac plexus.

Sn.	Akshara of Dala	Shakti	Correlated Plexuses as per this study
1.	Ma	Sarvanga	Phrenic plexus
2.	<a	Soma	Gastric plexus
3.	.ka	Yama	Suprarenal plexus
4.	Rak	Bhadra	Splenic plexus
5.	Fka	Tatkisi	Pancreatic plexus
6.	N	Saundrya	Renal plexus
7.	/kaa	Shantmudra	Gonodal plexus
8.	Uak	Visakha	Superior mesenteric plexus
9.	Iak	Dakisini	Arotic plexus
10.	Qa	Ruchira	Hepatic plexus

The dissection revealed that the umbilical position in adults is at the level of the disc between the third and fourth lumbar vertebrae, which is the position of inferior mesenteric plexus, however coeliac plexus is more appropriate to name as Manipura Chakra based on its description and function. The celiac plexus is the largest main autonomic plexus between the twelfth thoracic and first lumbar vertebrae. It is a dense network that connects two big coeliac ganglia and surrounds the coeliac artery and the superior mesenteric artery's root. It is located posterior to the stomach and smaller sac, anterior to the diaphragm crura and the beginning of the abdominal aorta, and between the suprarenal glands. The plexus and ganglia are connected by the larger and smaller splanchnic nerves and branches from the vagus and phrenic nerves. The ten subdivisions of coeliac plexus supply to different viscera of abdomen including digestive system. The plexus spreads as a network of secondary plexuses along nearby arteries. The phrenic, splenic, hepatic, superior mesenteric, suprarenal, renal, and gonodal plexuses are all related to the coeliac plexus. The autonomous nervous system is in the form of sympathetic trunks which is situated on either side of Sushumna (spinal cord). It is made up of number of sympathetic ganglia. These ganglia give rise to lateral and medial branches. The lateral branches from these ganglia join the spinal nerves and supply to concerned viscera or part of the body. The medial branches of both sides join together along with

other components if any and form plexuses. These plexuses are of autonomous nervous system so have no voluntary control over it. And here the role of Yoga starts to get control over these plexuses or to regularize their activities the Asana and Pranayama has great role.

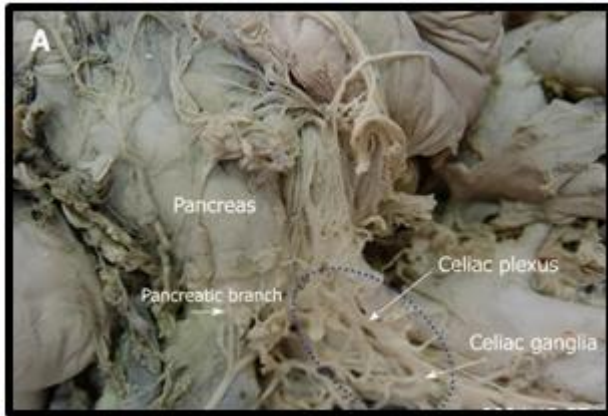


Fig. 2: Showing the coeliac plexus



Fig. 3: Showing splenic and coeliac plexus



Fig. 4: Showing the renal plexus



Fig.5: Student working on cadaver

Manipura Chakra is said to be located behind the navel or in the solar plexus. At the location of the navel, a secondary Chakra called Surya (sun) Chakra is located at the proper functioning of this Chakra improves dynamism, energy, will power and achievement in a person. The ten subdivisions of coeliac plexus supply to different viscera of abdomen including digestive system. Solar plexus and its function are to absorb and digest Prana from the sun. It is associated with the eyes because it is tied to the sense of sight. It is associated with the feet also because it is related to mobility.

Manipura is considered to be related to the pancreas and adrenal glands; the adrenal cortex, in the endocrine system. This way Manipura distributes Prana throughout the body as these glands produce key hormones involved in digestion, transforming food into energy for the body.

The Significance of the Manipura Chakra in the Body and Its Mechanism

On a physical level, this Chakra appears to be associated with the digestive system, the spleen, the liver, the pancreas, and the gall bladder, which create and show enzymes, acids, and juices required for nutrient digestion and absorption. Manipura is also linked to the adrenal glands, which are located above the kidneys. During an emergency, they secrete adrenaline into the blood. This has the effect of speeding up all physiological processes, such as sharpening and alerting the mind, increasing the heart rate, increasing the pace of respiration, and so on. The body is thus prepared for a higher degree of activity than usual, known as the 'fight or flight' reflex. Manipura governs digestion physically, personal power mentally, expansiveness emotionally, and spiritually all aspects of progress. When this Chakra is inactive, people experience sluggishness or digestive system malfunctions; they may have physical weakness, indigestion, stomach, intestine, and colon difficulties.

The sympathetic supply to the stomach is from coeliac plexus which receives fibers from T6 to T9 via the greater splanchnic nerve. The fibers of the coeliac plexus follow the course of the gastric and gastro-omental arteries to reach the stomach.

The autonomic nervous system (ANS) controls the activity of the stomach through parasympathetic stimulation which increases muscle tone and peristalsis relaxes the sphincter thereby open it increases acid and pepsin production. Sympathetic stimulation which decreases muscle tone and peristalsis constricts the sphincter thereby closing it inhibits acid and pepsin secretion. Myenteric plexus which lies between the muscular layers of the gut is a part of coeliac plexus. Its main role is in coordinating the movement of food through gut. Sub mucosal plexus lies in the sub mucosa that is under

the inner mucosal lining of the gut. Its main roles is controlling gastrointestinal secretions, like the gastric acid secretion in the stomach and controlling blood flow in the gut wall which is important for the absorption of nutrients.

The enteric system does not exist in isolation from the rest of the nervous system. While it can function on its own, parasympathetic and sympathetic impulses from extrinsic nerves to the plexus can excite or inhibit gastrointestinal activity. The enteric nervous system is also influenced by impulses of the sensory nerve endings in the epithelium lining the gut.

The solar plexus is a large plexus with a network of nerve fibers and a bulk of nerve material. It has a name. "Solar" was bestowed upon it due to

- Its central position;
- The fact that its filament extends in all directions to the important abdominal organs, similar to the rays of the sun; and
- The fact that it is recognized as the powerhouse and great reservoir of "life force" just as the sun is the great powerhouse and reservoir of material energy of our solar system. It is located in the upper abdomen, behind the stomach and in front of the aorta, in the "pit of stomach."

It performs the most significant job in the vegetative life of the organism, subdividing the nerve energy required for the processes of nourishment, absorption, growth, and so on. It is known as the "nervous system of organic life." A solar plexus injury drastically disrupts life processes, and a severe blow on it paralyzes the essential organs, resulting in death nearly instantly.

Conclusion

The Manipura Chakra can be considered as coeliac plexus based on its positional, structural, and functional indistinguishability, which is autonomic in nature. Positionally, both are residing around the root of major blood vessels of the body. Structurally, both seem like a sun in the center, emerging its rays into the periphery. Functionally, both Manipura Chakra and coeliac plexus govern the functions of the gastrointestinal tract. The energy entering the Chakra leads to proper functioning and nourishment. Proper functioning of this Chakra generates gastrointestinal health, enthusiasm, and passion. If a Chakra is closed, blocked, or unbalanced then the organs associated with the gastrointestinal tract are malnourished leading to further complications and diseases.

Beeja mantra recitation, Yogasana, Bandha, and Mudras are measures that aid in stimulating, waking, or balancing the Manipura Chakra, which in turn supports the normal working of abdominal organs and so aids in the prevention and management of ailments, as well as the creation of goodwill.

The finest Yogasana for solar plexus are ones that improve gastrointestinal system function and make you feel more powerful and confident. Aasanas such as Vajrasana, Virabhadrasana, Paripurna Navasana, Ardha Matsyendrasana, Paschimottanasana, Trikonasana, Santulanasana, Nauli Kriya, and Agnisara Kriya act by increasing abdominal pressure, which improves blood circulation to terminal parts of the abdominal viscera.

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