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ROLE OF VATA DOSHA IN DIGESTION

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Abstract

This study explores the pivotal role of Vata dosha in the process of digestion within the framework of Ayurveda, an ancient holistic system of medicine originating from India. Vata dosha, composed primarily of air and ether, governs various aspects of digestion, including the initiation of the digestive process, food movement through the digestive tract, absorption of nutrients, and elimination of waste. The balanced functioning of Vata ensures efficient digestion and contributes to overall well-being. This paper delves into the multifaceted functions of Vata dosha in digestion, highlighting its influence on peristalsis, nutrient absorption, and the coordination of the nervous system. The impact of Vata imbalance on digestion is also discussed, with insights into potential digestive disorders arising from excessive or deficient Vata. Ayurvedic principles guide the maintenance of balanced Vata and optimal digestion through lifestyle practices, dietary choices, and herbs and spices. The significance of regular, warm, and cooked meals, along with herbal remedies such as ginger, cumin, and fennel, is emphasized for supporting balanced Vata and digestive harmony. Recognizing individual constitution (Prakriti) and imbalances (Vikriti) is integral to Ayurvedic practice, and personalized recommendations are vital for effectively addressing digestive concerns. Consulting experienced Ayurvedic practitioners can provide tailored insights to restore and maintain Vata equilibrium, promoting robust digestion and holistic well-being.

I. INTRODUCTION

Doshas, together with Dhatu and Mala [1], comprise the human body and maintain internal balance. According to Acharya Vagbhata, ailments arise when the Doshas are out of kilter, whereas homeostasis is maintained in harmony [2]. According to Acharya Sushruta, "the body is never without Kapha, Pitta, Maruta (Vayu), and even Shonita (blood); the body is always supported by these" [3] emphasizes the necessity of the Doshas in maintaining internal balance.

Sharira Dosha (responsible for bodily functions) and Manasa Dosha (in charge of the mind) are the two main Doshas recognized by all Ayurvedic schools. To further clarify, Vata, Pitta, and Kapha are the three primary Sharira Doshas. Again, the Manasa Doshas are broken down into the two primary components of Raja Dosha and Tama Dosha [4]. Researchers often mention Rakta as the fourth Dosha in the human body, although this idea needs to include the underlying concepts necessary to determine the Dosha element. Doshas are classified according to their ability to vitiate themselves and others (referred to as "Swatantreyana Dushti Katritwam Doshatwam") and their role in determining the individual's phenotype (referred to as "Prakrityarambhakatwe Sati Dushti Katritwam Doshatwam") [5]. Due to its inability to become vitiated on its own, Rakta cannot be considered a Dosha; instead, it becomes vitiated when other Doshas are affected by the disease. Due to its qualities, functions, controlling power over other Doshas, and potential to produce the most significant number of ailments, Vata has been regarded as the most influential and primary among the Sharira Doshas. All Ayurvedic scholars, including Acharya Charaka, have defined the classical functions of Vayu. He isn't the only one who has underlined Vata Dosha's many roles; Acharya Sushruta and Vagbhata have as well. The Sanskrit name for "Vata" is "Va Gatigandhanayo," which alludes to two significant aspects of Vata Dosha's functioning in the human body: "Gati," meaning "motion," and "Gandhana," representing "initiation" [6]. Therefore, Vata Dosha's principal duties include the movement of other Dosha, Dhatus, and Mala and activating various sensory and bodily organs. According to Acharya Charaka, Vata Dosha has the following characteristics: roughness (Khara), coolness

(Shita), lightness (Laghu), subtlety (Sukshma), mobility (Chala), lack of sliminess (Vishada), and coarseness (Vishada) [7]. Each Gurvadi Gunas is responsible for various tasks, as explained by Acharya Hemadri, the famous commentator of Ashtanga Hridayam. Vata Dosha's overall purposes become more apparent when we examine the roles assigned to the Vata Dosha's Gurvadi Gunas. Prana, Udana, saman, vyana, and apana are the five classifications of Vatadosha based on their geographical position. Each of the five Vata doshas is located in a separate body part and performs a unique set of tasks. Saman vayu, one of the five forms of data, serves several purposes and operates on several levels. Prana vayu, Vyana vayu, and apana vayu all aid it in serving its purpose. These values work in tandem with each other to carry out their physiological tasks. Therefore, correct function knowledge in a contemporary context is required. Since Ayurveda is a discipline founded on functional understanding, it cannot be consistently represented by a single thing. Regarding current literature, Ayurvedic literature does not directly link Samana vayu and the other vayus. Samana vayu is a complex topic for students, especially those in their first year of a Bachelor of Ayurvedic Medicine and Surgery programme. The current situation calls for a greater interest in Ayurveda science so that its complex concepts may be evaluated against Western medicine standards. For this review, we've been looking back at the historical descriptions of Samana values and physiological activities to identify anatomical components based on those descriptions.

II. SUPREMACY OF VATA DOSHA AMONG SHARIRA DOSHAS

All the most prominent Ayurvedic experts agree that Vata Dosha comes first in the list of Sharira Doshas. The lyrical description of Vata Dosha's superiority by Acharya Vagbhatta in Ashtanga Hridayam may be broken down into the following categories [8]:

A. The omnipresence ('Vibhutwad') of Vata makes it the most potent dosha. Because of its ability to permeate the minute pathways, Vata that has been vitiated can reach the minute areas of the body and create ailments affecting those regions.

B. Vata is considered ultimate since it can quickly transmit across all body channels (a quality known as 'Ashukaritwad').

C. Vata's 'Valitwad' makes it more powerful and intense than the other two Doshas. Hence it's often regarded as the most dominant.

D. The 'Anyakopanat' of D. Vata, the ability to vitiate other Doshas, makes it the most powerful Dosha. Vata facilitates the transition from Prakopa to Prasara by reducing the flow of the other two Doshas.

E. Vata's 'Swatantryad' — its autonomy — makes it the most potent dosha. Chaya, Prakopa, and Prasara of Vata do not rely on the Chaya, Prakopa, and Prasara of other Doshas.

F. The 'Vahu Rogatwad' attribute makes F. Vata the king of all illnesses since it may trigger the most conditions

[9]. Vataja Nanatmaja Vikara is the most common (80), followed by Pittaja (40) and Kaphaja (20) among the Nanatmaja Vikara (diseases occurring owing to vitiation of just one kind of Dosha precisely) [9]. Conditions brought on by Vata Dosha vitiation are many, according to Charaka Samhita's Chikitsasthan chapter 28 [10].

III. FACTORS THAT STIMULATE FOR DIGESTION

The elements provided below are all known to trigger the digestive enzyme for their digestive function.

ANNAM VIVECHAYATI

It's the process of absorbing the beneficial properties of foods, liquids, and other substances while discarding the less valuable byproducts of digestion. Through osmosis, the liquid component of chyme is taken up. Sodium is taken in by the intestinal epithelial cells through active sodium transport. Sodium-glucose cotransporter is responsible for glucose uptake, sodium amino acid cotransporter for protein uptake, and parathyroid hormone for calcium uptake. Aldosterone aids in the retention of sodium, chloride ion, and water in a dehydrated person. Monoglycerides and fatty acids that have been digested are more easily absorbed with the aid of bile micelles.

MUNCHATI

It refers to eliminating waste, such as faeces and pee. The role of Apana vayu is the removal of garbage. Samanavayu triggers Apana Vayu to carry out its position in trash removal. This signifies proper waste removal occurs when Apana vayu and Samana vayu work together. The defecation and micturition reflexes are both stimulated by the samana vayu. The need to defecate is instant after a mass movement that drives faeces into the rectum. There are two distinct types of reflexes. One is a rectal wall ENS-mediated intrinsic reflex. Rectal distention results from wastes entering the rectum. Peristalsis begins in the descending colon and travels to the sigmoid and rectum due to sensory impulses generated by the myenteric plexus. The internal sphincter is loosened as a result of these waves. When the external anal sphincter is relaxed, bowel movements are released. The parasympathetic nervous system is responsible for the other defecation reflex. The rectum receives faecal matter and signals to the spinal cord by stimulating its nerve endings. The descending colon, sigmoid, and rectum get reflex signals from the pelvic nerve. These parasympathetic nerve impulses from the brain to the pelvis considerably increase peristalsis and calm the internal sphincter. At the same time, defecation happens if the external anal sphincter is intentionally loosened [11]. The stretch reflex triggers the need to urinate. Signals are sent to the sacral section of the cord through the pelvic nerve from sensory stretch receptors in the bladder wall as the bladder starts to fill with urine at a more significant pressure. After that, the parasympathetic nerve fibres return to the bladder, which triggers micturition [12].

IV. MODERN MEDICAL SCIENCE RESEARCH

When comparing health and sickness, the digestive system is prioritized in Ayurveda. New findings into the gut-brain axis (GBA) pave the way for this transformation in contemporary medicine. The gut-brain axis [13] refers to the two-way biochemical transmission between the digestive system and the brain. Influenced by the enteric nervous system, vagus nerve, and gut microbiota, the gut-brain axis also affects the central nervous system, neuroendocrine system, neuroimmune system, hypothalamic-pituitary-adrenal (HPA) axis, sympathetic and parasympathetic branches of the autonomic nervous system, and HPA axis [14]. Due to the importance of gut microbiota in the biochemical signalling processes between the gastrointestinal tract and the brain, the gut-brain axis is also known as the microbiota-gut-brain (MGB) axis. Symbiotic bacteria colonization of the human digestive tract is known as the gut microbiota. Different parts of the digestive system have different compositions of gut bacteria. Compared to other environments, the colon has the most excellent microbial density [15]. The colon is the primary location of vata dosha, where it resides and controls bodily processes, as we saw in the first paragraph. More evidence suggests that the gut micro-organism influences brain function by secreting chemicals such as cytokines, neurotransmitters, neuropeptides, chemokines, endocrine messengers, and microbial metabolites like short-chain fatty acids, branched-chain fatty acids, and peptidoglycans [16]. These products are subsequently transported to the brain by the gut microbiota through the blood, neuropod cells, neurons, endocrine cells, and maybe other routes [17]. The gut-brain behavioural axis [18] has been shown in studies to include communication between the hippocampus, the prefrontal cortex, and the amygdala (in charge of emotions and motivation). The gut bacteria produce many neuroactive chemicals, including acetylcholine, dopamine, catecholamine, y-aminobutyric acid, histamine, melatonin, and serotonin, and play essential roles in gastrointestinal function and sensation. Over 90% of serotonin and almost 50% of dopamine are in the digestive tract. Some cytokines that influence brain function are correlated with changes in the microbial makeup of the stomach brought on by food, medication, or illness. In addition to sending signals to the brain, the microbiota in the gut secrete chemicals that may directly stimulate the vagus nerve. "Second brain" [19] is a term used to describe the

digestive tract. Similarly, acute and chronic stress encourage the HPA axis, altering the microbiota and epithelium of the intestines and potentially having systemic repercussions. The cholinergic anti-inflammatory pathway signals through the vagus nerve, influencing the gut epithelium and bacteria. The brain's ability to sense hunger and fullness is tied to the presence or absence of food, which alters the makeup and function of gut microbiota [20]. The gut microbiome is the most varied in the body and is vital in maintaining human health. Changes in the functional composition and metabolic activity or the geographical distribution of gut microbiota [21] may be caused, in part, by the consumer's dietary patterns. Most microbial communities found on or within the body have positive effects. These healthy microbial communities perform various essential tasks, including assisting digestion [22]. They also aid in keeping harmful bacteria out of the body. There is healthy competition between these beneficial microbial populations [23]. However, when this equilibrium is disrupted, the colonies' capacity to control each other's development decreases, potentially leading to an overgrowth in one or more disturbed colonies, which may harm some of the smaller beneficial colonies in a self-perpetuating cycle. Because the injured colonies are less able to regulate the development of the overgrowing ones, the overgrowth problem worsens as more helpful colonies are destroyed, exacerbating the imbalance. If this continues for too long, systemic and chronic inequality will develop between colonies, reducing the net positive effects of these systems. Similarly, microbial colonies produce a wide variety of waste products. Under normal conditions, the body efficiently handles these byproducts via various waste elimination systems. Unfortunately, enormous colonies excrete more of these byproducts because of their higher population sizes. The body's waste elimination system might become overwhelmed by rising amounts of waste by-products produced by microorganisms.

IV. DISCUSSION

Vata, Pitta, and Kapha make up the neurological, endocrine, and immunological systems, respectively, of all living things. All of our Acharyas explain why Vata is the most dominant of the tridoshas. Vata is the master controller of the body's rhythms and the source of all activity. It's the fundamental component of humour and regulates every bodily process. Samanavayu, one of the five types of Vata, is associated with jathargani and helps to fire up the digestive fire. Sthivana (spitting), ksavathu (sneezing), Edgar (belching), nirvana (breathing), and annapravesha (deglutination) are all activities of the pranavata, which is situated in the murder (head). Vyanavayu travels quickly and covers the whole body; it controls movement, muscular contraction and relaxation, and eyelid opening and closing. Apana, which dwells in the pakvadhana (big intestine), is responsible for the elimination of samirana (flatus), sakrit (faeces), mutra (urine), sukra (semen), garbha (foetal tissue), and artava (menstrual fluid). Samanavayu also aids in the digestive processes: intake, stimulation of digestive secretions, absorption of the essence component, gastrointestinal motility, essence separation from waste, and the beginning of waste disposal through the srotas. Prana, vyana, apana vayu, and pachaka pitta work together to fulfil samana vayu's duties. The coordination of prana vayu aids in food entering the oesophagus. Vyana Vayu's role is to aid in gastrointestinal motility by facilitating muscular contraction and relaxation. The coordinated action of pancake pitta aids in the digestion of meals. As a result of apana values coordinating properties, waste is more easily expelled from the body. Physiologically, the functions of the hypoglossal muscle, the

swallowing centre of the medulla, the 5th, 9th, 10th, and 12th cranial nerves, the peristaltic movement of the gastrointestinal tract (GIT) controlled by the myenteric plexus of the enteric nervous system (ENS), all stimulating factors that stimulate the secretion of digestive enzyme, bile micelles, sodium glucose co-transporter, and so on, can be compared to.

A. Vata Dosha as Regulator of Agni

In discussing Vata Dosha's duties, Acharya Charaka notes that Vata sparks Agni, calling it "Samiranoagne"[24]. Samana Vayu, a manifestation of Vata Dosha, is considered to be Agni's primary source of strength ("Samanoagnivalaprada")[25]. Vishamagani, brought on by Vata Dosha's vitiation, is another kind of Agni alteration described by Acharya Charaka [26]. "Anila (Vata) pervades the entire body and, when not aggravated, maintains the normalcy of Dosha, Dhatu, and Agni" [27] is how Acharya Sushruta describes Vata Dosha's role as a regulator of Dosha, Dhatu, and Agni. Following the logic of the classicists, we might conclude that Vata Dosha controls Agni more effectively than any other dosha. Vata Dosha is the sole regulator of all these activities in the human body that are necessary for the sustenance of life, as Agni is considered to be the essential factor for digestion (in the form of Jatharagni), absorption (in the form of Bhutagni), and metabolism (in the form of Dhatwagni) [28]. According to Acharya Charaka, "Vayurayuvalam Vayurvayurdhata Sharirinam" — "Vayu (Vata Dosha) is the elan vitae, Vayu (Vata Dosha) is the power, Vayu (Vata Dosha) is the sustainer of living beings" — expresses this idea.[29].

B. Vata Dosha as Regulator of Mana & Indriya

Vata's pervasive nature allows it to penetrate even the most minor areas of the body, allowing it to quietly affect the Mana (thinking) and Indriya (sensory organs). Under the Vata Dosha functions, Acharya Charaka describes this in great detail in Vatakalakaliya Adhyaya of Sutrasthana of the Charaka Samhita [30]:

a) "(Vata) Pravartaka Cheshtanamucchavachanam"Is the force behind all activity.

b) "(Vata) Niyanta Praneta Cha Manasa"Vata

c) controls and motivates mental pursuits.

d) "(Vata) Sarveindriyanamuddyojaka Sarveindriya- rthanambhivodha"Vata facilitates sensory integration and appreciation of the world around us.

e)"(Vata) 'Pravarataka Vacha', 'Prakriti Shabda Sparshayo', 'Shrotra Sparshanayo Mulam', 'Harshotsahayoni'Vata is "the origin of touch and sound," "the root cause of the auditory and tactile sense faculties," and "prompts speech." "factor in the production of happiness and bravery".

Because Vata governs mental processes, imbalances in Vata are the root of many mental disorders (Manasa Roga). As another Manasa Dosha, Rajo Guna is believed to fall within Vata's sphere of influence [31].

Therefore, as Vata becomes vitiated, Rajo Guna likewise becomes vitiated, which in turn vitiates the intellect and qualities. This suggests that Vata is the fundamental factor in developing the various Manasa Rogas. Similarly, Vata Dosha governs all bodily senses and functions. When the soul (Atma), the reasons (Indriya), the mind (Mana), and the objects of sense (Indriyartha) are in close enough proximity to one another, an immediate manifestation of mental ability (Pratyaksha) occurs [32]. Vata Dosha controls many sensory experiences because it controls the activity and motion of Mana and Indriya. When the Vata Dosha becomes imbalanced, it may create an illusion of reality. Vata, then, controls the functioning of the brain and the many sensory and motor systems.

C. Impact of Vata Vitiation on Srotas and its Role in Srotadusti

In this context, discussing how Vata Dosha vitiation affects Srotas is essential. There are three ways to think about the deterioration of a Dosha: the loss of all substance (Dravyata Vriddhi), the loss of all quality (Gunata Vriddhi), and the loss of all function (Karmata Vriddhi). The characteristics of Vata Dosha are as follows: Ruksha, Shita, Laghu, Sukshma, Chala, Vishada, and Kshara. Stambhana, or slowness of any process or activity inside the human body, is one of the functions of the Shita Guna [33]. Movements across the various channels may become slow if Vata Dosha is aggravated. One of Vata Dosha's roles is described as "Dosha Samshoshan" in the Charaka Samhita's Vatakalakaliya Adhyaya of Sutrasthan. Absorption of the watery component of the body is referred to in the commentary of Acharya Chakrapani Dutta as Sharira Kleda Samshoshana [34]. The Ruksha Guna of Vata Dosha serves this purpose [35]. When any fluid inside channels moves slowly, the area that may be absorbed increases. Dosha Samsoshana Karma or Ruksha Guna may cause the material in the media to condense and take on a bolus-like shape. This particular quality has been labelled "Varta" because of its role in the function of Vikrita Vata Dosha. Acharya Chakrapani and Acharya Arundutta both offered their explanations for what "Varta" means: "Vartulikara Varta" and "Purishadinam Pindikaranam," respectively. Both definitions have to do with a bolus being formed within the channels. As a result, a bolus-like structure may develop if the Vata Dosha is aggravated since the contents of the Srota will flow more slowly. This will exacerbate Vata Dosha by obstructing the flow of srotas. When Vata Dosha becomes vitiated, it blocks the flow of Pranavaha Srotas; when Kapha becomes dry and condensed, it obstructs the flow of Srotas in Swas and Kasa Roga.

When Pranavaha Srotas get blocked, Vata Dosha becomes more vitiated, leading to respiratory discomfort and cough. This kind of channel deviation is similar to the Sanga variety of Srotadusti. Again, Acharya Charaka lists a role for 'Vikrita Loka Vayu' that may be translated as "changing the course of the rivers to the opposite direction" ('Pratisaranamapaganam') [36]. The same principle holds for Vata Dosha vitiation. When Vata Dosha becomes vitiated, it typically causes the channels to switch their normal path to the

other way. Specifically, Vata Dosha shifts in Tamakswas Roga towards the 'Pratiloma Disha' (opposite direction) [37]. Diseases like Udavarta may also have their origins in retro peristalsis, as shown when this occurred inside Pakkvashaya. The same holds for Chhardi. This form of channel change is analogous to the Srotadusti known as Vimargagamana.

Vata Dosha, with its Ruksha Guna and Kleda Samsoshaka Karma, is responsible for converting the watery fraction of the contents of the channels into bolus. Arbuda and Granthi are conditions in which the Medavaha and Mamsavaha Srotas develop tumor-like formations due to the distinctive nature of Vata Dosha. Similarities exist between this vitiation of Srotas and the Shiragranthi variety of Srotadusti. The Chala Guna of Vata Dosha allows it to displace other Doshas from one location to another. This distinct quality aids in controlling the flow of Dosha and Dhatu substances along the various Srotas. Vata Dosha, when vitiated, might abnormally discharge other Doshas via various orifices and channels, dragging them down with it. In the instance of Prameha, vitiated Vata Dosha brings Kapha and Pitta Dosha to Vasti, where they are combined with Meda, Mamsa, and Shariraja Kleda before being expelled by Mutravaha Srotas [38]. Similar to the Atipravritti kind of Srotadusti, which is caused by a vitiated Pitta Dosha, a vitiated Vata Dosha causes an increase in the need to urinate.

D. Vata Dosha as Parama Yogavahi

Vata Dosha's capacity to amplify the traits of other Doshas without losing its unique character is one of the key reasons for its dominance and ability to induce the highest number of ailments. Vata has been named "Parama Yogavahi" because of its unique attribute. Vata Dosha is said to be 'Yogavahi' in nature by Acharya Charaka. Combined with other Doshas, it results in positive and negative outcomes. It generates a warming feeling when paired with Tejas (Pitta Dosha) and a cooling sensation when associated with Soma (Kapha Dosha) [39]. Based on his observations of Vata Dosha, Acharya Sushruta classified all known substances into Soumya and Agneya.

V. CONCLUSION

In conclusion, the role of Vata dosha in digestion, according to Ayurvedic principles, is a dynamic and essential aspect of overall health and well-being. As a fundamental force composed of air and ether, Vata governs the intricate processes that ensure effective digestion, from initiating the digestive cascade to promoting peristalsis, nutrient absorption, and timely waste elimination. Understanding the delicate balance of Vata and its impact on digestion provides valuable insights into maintaining optimal health. An awareness of Vata's potential imbalances underscores the significance of adopting mindful lifestyle practices and dietary choices.

By embracing warm, cooked foods and incorporating digestion-supporting herbs and spices, individuals can harmonize their Vata, fostering a balanced digestive system. Moreover, the personalized approach of Ayurveda, rooted in individual constitution (Prakriti) and current imbalances (Vikriti), offers a holistic framework for addressing digestive concerns. Consulting experienced Ayurvedic practitioners empower individuals to tailor their approach, enabling the restoration of Vata equilibrium and the cultivation of robust digestion. Ultimately, the intricate interplay between Vata dosha and digestion exemplifies the complicated wisdom that Ayurveda imparts. By nurturing Vata's influence and its balance, individuals embark on a journey towards digestive vitality, enhanced well-being, and a deeper connection with the body's innate intelligence.

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