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Thyroid Gland

And Ayurveda

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Dedication

We dedicate this unique book to
Beloved parents and teachers!

Author

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Dr. Mrs. Sukhada Suraj Jagtap

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PREFACE

The thyroid gland holds significant importance within the human body as an endocrine gland. Historically, it was believed that the sole purpose of the thyroid was to enhance the aesthetic appearance of the neck. However, it is now understood that thyroid hormones play a crucial role in maintaining a healthy metabolism, promoting growth, and facilitating proper development.

The thyroid gland possesses a high tolerance for stress and stimulation, allowing it to respond swiftly to such factors. Consequently, it is not surprising that thyroid problems have emerged as the second most prevalent endocrine disorder.

Recent studies indicate that thyroid issues affect approximately one in every thirteen individuals, although a massive portion of the population remains unaware of this fact. Given the limited success of other medical systems in treating thyroid ailments, there is an increasing demand for the Ayurvedic medical system to address these diseases.

Numerous thyroid disorders are not deemed life-threatening and can be readily treated. As a result, they have garnered the attention of numerous Ayurvedic practitioners. However, a significant impediment is the lack of a precise correlation between the thyroid gland and Ayurveda.

The Ayurvedic system of medicine is highly advanced and possesses remedies for even the most imminent disorders. Acharya Charaka stressed that the labelling of diseases is not as crucial as the identification of the individual's constitutional status, which should then guide the treatment plan. A more comprehensive understanding of the thyroid gland can be achieved by examining the effects of thyroxine on the body, rather than solely focusing on its anatomical location.

Having a comprehensive understanding of the disease and its constitutional status is significant when it comes to devising a treatment plan and implementing the principles of Ayurvedic treatment.

An endeavor has been undertaken to expound the principles of treatment for thyroid disorders while adhering to the fundamental philosophy and boundaries of Ayurveda for all forms of thyroid disorders. This publication is certain to be advantageous to all Ayurvedic practitioners, students, researchers, and individuals with an interest in science.

- **Authors**

ENDOCRINOLOGY- AN AYURVEDIC PERSPECTIVE

In our classical literature, there is no specific chapter or detailed reference regarding the concept of the endocrine system and its disorders. However, we will attempt to shed light on a potential understanding of the endocrine system and its disorders based on cross-referencing.

The human body can be likened to a vast and densely populated metropolis, where each part functions for the overall well-being of the entire city. If one-part

ceases to function, the entire city will be paralyzed. Given the complexity and size of this system, it is crucial that messages are efficiently and accurately conveyed between various parts. Any communication gap can disrupt the body's processes.

The nervous and endocrine systems are two systems that facilitate this communication throughout the body. While the nervous system primarily deals with sensory and motor functions, the endocrine system is responsible for regulating and maintaining various bodily conditions.

Our focus here is on the endocrine system and how Ayurveda can contribute to its health. Ayurveda, as a science of the three Doshas, can provide insights into the intricate workings of the endocrine glands. Is there a role for holistic medicine in addressing the needs of the endocrine system? These are important questions that anyone should consider and inquire about.

THE THREE DOSHAS AND ENDOCRINE SYSTEM:

The three Doshas, which are imperceptible, pertain to the operational state and mechanism of the human body. Vata denotes heightened activity, Pitta signifies a state of hyperactivity, and Kapha indicates a sluggish and lethargic system. This is analogous to the endocrinology or the impact of endocrine glands on the body.

There are three states of the body, under the effect of the glands -

1. Hyper
2. Hypo and
3. Normal

This represents the anatomical structure of the human physique. Ayurveda delves into the entirety of the body, whereas modern sciences tend to focus on specific components rather than the holistic body. Consequently, there exists no inherent disparity within the body itself. In the event of weight gain, it can be attributed to imbalances in Vata or Kapha, and the appropriate remedy lies in restoring equilibrium to these Doshas.

THE HOLISTIC APPROACH AND ENDOCRINOLOGY:

This is the second component that holds significant importance in comprehending Ayurveda. According to Ayurveda, the entire system consists of three components: the Body, Mind, and Spirit. These three components function in harmony with one another. The missing connection between the Mind and Body, which has received substantial financial investment in modern sciences, is the endocrine system. The endocrine system operates under the influence of the master gland, predominantly located within the hypothalamus, where emotions are primarily situated. It is an undeniable reality

that with the escalating levels of stress in our surroundings, issues related to the endocrine system are on the rise.

There are three aspects to the treatment of the endocrine system in Ayurveda.

Firstly, it is crucial to address the underlying cause of the disease to make appropriate interventions for the body.

Secondly, it is important to establish a healthy connection between the body and mind, as hormones function as a bridge between the two. This involves reducing stress and ensuring the proper functioning of this connection for overall well-being. Lastly, maintaining complete wellness is of utmost importance, as health cannot be compartmentalized.

CONCEPT OF ENDOCRINE IN AYURVEDA

- There is a question that arises as to whether our acharyas had knowledge of the concept of Antasravi granthi, also known as Endocrine glands. If the answer is affirmative, then it is puzzling why they did not dedicate a separate chapter to this topic or provide a detailed description of the treatment for related disorders. The concept of strotas may hold the key to this query. Ayurveda believes that the manifestation of disease occurs when there is a Vaigunya, which signifies an impairment and vitiation of the strotas. According to Chakrapani, "Sravanata srotansi" (Cha. Su. 30 / 12), the srotas are channels that allow for transudation. Nutrient materials are supplied to the tissues through this process. In the discussion of the paryayas of srotas, Samvruta and asamvruta (Cha. Vi. 05), which refer to covered and uncovered passages, are mentioned by the acharyas in the classical texts.

- Srotasameva Samudaya pururshа

- Srotomayee purusha

- Yavantaha Purusha Murthimantho Bhavavishesha (Cha. Vi. 05)

All these make us to arrive at the opinion that the srotas or even the smallest part of body, including cell, can

be taken as srotas. Acharya Charak has mentioned that srotas are Lakshipalakshani, that is Aparishankya, which supports the consideration of every single cell as srotas which performs sravanakarma.

Upon careful examination of the references and explanations provided, it becomes evident that our Acharyas have a comprehensive understanding of srotas, encompassing both sukshma srotas (uncovered) and sthoolasrotas (covered). The concept of Antasravi granthi, which can be categorized under srotas, is not explicitly mentioned by the Acharyas. The naming of ductless glands has not been a focal point for the Acharyas, as they have been considered within the realm of srotas. Endocrine disorders primarily arise from the hypo and hyper functioning of these glands. This further emphasizes the significance of srotas, as there is no structure in the body that can grow, develop, or become waste without the involvement of srotas (Cha. Vi. 5/3). Vagbhata is the sole author who mentions the kayagni amshas. These amshas are distributed throughout all dhatus, as they are derived from kayagni, and their functions are akin to that of Kayagni. The kayagni amshas, located within the dhatus, impact the catabolic process, leading to the deterioration of dhatus (A. H. Su.11/34). The excessive functioning of these panchakamshas results in dhatus diseases, while their diminished functioning leads to an increase in dhatus (A. H. Su.11/34).

These authors elucidate their understanding of Endocrine disorders in Ayurveda. They explain the Atyagni

/ Bhasmaka roga, as described by Charak and other Acharyas, because of hyper metabolism associated with the overactivity of the thyroid gland, known as Hyperthyroidism. Both hyper and hypo metabolism are linked to the hyper and hypo functioning of the thyroid gland, and any abnormalities in this gland can lead to metabolic disturbances. (Introduction to Kaya Chikitsa and Digestion and Metabolism in Ayurveda by C. Dwarakanath)

Some Important Endocrine glands and their probable Ayurvedic correlation.

Sr. No.	**Modern Gland**	**Probable Ayurvedic Co-relation**
1.	Pituitary gland	
2.	Pineal gland	
3.	Thyroid gland	“Traya kante gala nalakastini” (Su Sha 5/26 dalhan)
4.	Parathyroid gland	
5.	Thymus	
6.	Adrenal gland	“Vrukaagra Mamsam” (Amarkosha)
7.	Pancreas	“Undakavaha dwe trayomulam talu klomancha”(Su Sha 8/12)
8.	Ovaries	Phala Kosha
9.	Placenta	“Apara garbhavarana haryu sanjayam loka avla mithya chakshate”(Su Chi 15)
10.	Testes	Vrushanou

CLASSIFICATION OF ENDOCRINE DISORDERS:

Endocrine disorders are classified as follows:

1. Diseases caused by either an underproduction or overproduction of hormones, resulting in biochemical and clinical consequences.
2. Diseases associated with the development of mass lesions. Another classification of endocrine disorders includes:
    1. Excessive hormone production.
    2. Insufficient hormone production.
    3. Hypersensitivity to hormones.
    4. Resistance to hormones.
    5. Non-functioning endocrine function (Davidason's and PraveenKumar Medicine).

However, this classification can be comprehended through the lens of Ayurveda, which categorizes these disorders as different srotovaigunya vikaras. These include Galganda in Mamsavaha sroto vikara, Sthoulya in Medovaha sroto vikara, Klaibhya in Shukravaha sroto vikara, Yonigata roga in Artavvaha sroto vikara, Bhasmaka/Atyagni Annavaha sroto vikara, and Prameha in Udakavaha sroto vikara.

Another classification can be made based on Trivida roga, as explained by Sushruta (Su Su 24). This includes Adhyatmika, Janmabala, Doshabala, Adibhoutika, Adidaivika, and Swabhava bala. It is a fact that any disease

in the body occurs due to Vaishamya of shareera bhava, which is "Veekaro dhatu Vaishamya" (Cha. Su. 9/4). Chakrapani commented that vaishamya may be in the form of Vruddi or Kshaya.

In term of modern knowledge endocrine disease may be classified in Ayurveda as -

- ❖ Vruddyatmaka janya (Hyper functioning)
- ❖ Kshyayatma janya (Hypo functioning)

SAMANYA SAMPRAPTI OF ENDOCRINE DISORDERS:

Endocrine disorders primarily manifest because of hyper or hypo hormone secretion, or abnormal resistance. According to Ayurveda, these phenomena may be classified as kshaya and vru-ddhi, while considering Srotodushti prakara Atipravritti and sanga. Vruddi is defined as excessive secretion or accumulation, primarily due to Atipravritti (hyper) type of Srotodushti (AH.Su.;13/18Arunadutta). In the case of endocrine disorders, Sanga type of srotodushti may be understood as hyposecretion of hormones, such as dwarfism due to decreased GH Sanga, or hormonal resistance, where tissues are unable to receive hormones, such as Nephrogenic diabetes insipidous where nephrons are resistant. These srotodushti may be caused by tri-dosha

alone or in combination. Charaka mentions the samanya samprapti for the disease as the Rasadhatu will be circulating all over the body with the help of Vyana vayu, with continuous Gati of dravadhatu in Hrudaya, RasaVahini, and Raktavahini. In this way, it circulates continuously. If there is any srotovigunata or khavaiagunya, it is lodged there and manifests as different diseases (Cha. CHi. 15/35-36). For instance, just as the Vayu carries the Megha from one place to another, when the Megha stops, the rain takes a place there.

Khavaigunya is in the Endocrine gland, which may be congenital, hereditary, or acquired. Eg -

1) Congenital defects of Hypothalamus - > Short stature
2) Genetic defects in posterior pituitary - > Cranial, Diabetes insipidus.

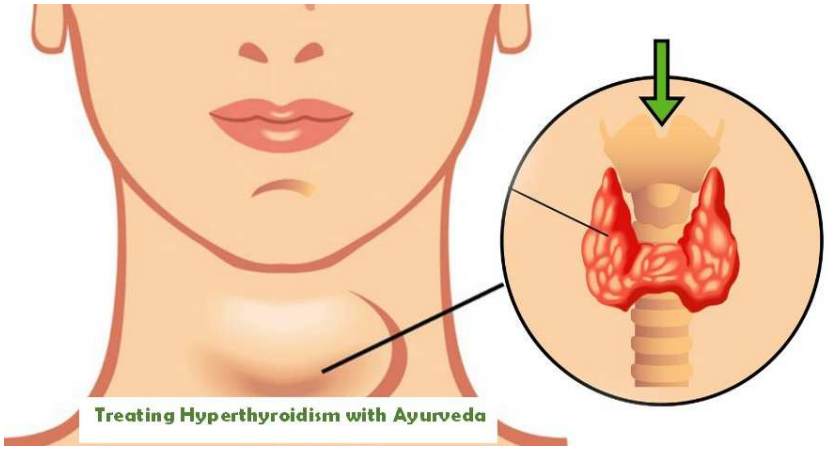
Vagbhata elucidates the concept of samanya samprapti, which posits that all diseases arise from the prakupita of Vatadi dosha. This leads to the circulation of Rasavahadhamani, located in Roghadhistana (sthana), throughout the body, resulting in the manifestation of various vyadhis (A. H Ni. 1/23). Vagbhata further notes that the lodging of prakupita doshas in various locations due to various nidana sevana can also cause disease. This samprapti is applicable to endocrine disorders, as sthanantarani, as stated by Arunadutta, implies that "Swasthanam hitwa parani sthanani". Similarly, in certain

endocrine disorders, the hypo or hyper secretion of hormones in one gland can affect another endocrine gland, leading to disease. For instance, in diabetes insipidus, ADH deficiency due to the hypo functioning of the posterior pituitary affects the kidney, resulting in polyuria. This phenomenon can be understood in Ayurveda as "Sthanantarani cha prapya".

Common manifestation due to sanga and Atipravritta are:

The manifestation of an excessive vruddidosha may indicate pravriddata in Guna, as well as karma lakshana and kshayadosha. Similarly, the hyper secretion and hypo secretion of the hormone also present signs and symptoms. (Ah Su. 1/24).

ENDOCRINE DISEASES IN AYURVEDA



After going through the classics, the following conditions can be considered.

1. Astha Nindita
   - Ati hraswa
   - Atiloma
   - Ati deergaha
   - Aloma
   - Ati krishna
   - Ati sthoola
   - Ati goura
   - Ari krusha

2. Prameha / Madhumeha

3. Udakameha
4. Galaganda
5. Vataj Shotha
6. Pindikodwestana
7. Klaibhya
8. Yoni vyapath
9. Athyagni/Bhasmaka

The disorders may provide indications of Endocrine disorders in Ayurveda. Achieving a 100 percent correlation is exceedingly challenging. However, in certain aspects, these disorders may be considered to have a probable correlation with Endocrine disorders. In this case, the Ayurvedic disorders are correlated with those of Endocrine disorders due to the presence of certain features in these diseases.

Atideergha: According to modern science, this can be regarded as Gigantism, which is caused by the underfunctioning of the growth hormone secreted by the anterior pituitary.

- Atihraswa: Charaka does not provide an explanation for this disorder. However, Sushruta mentions "janmabala pravrutta vyadhi" as "Vamana," which means "those diseases that are present from birth... vamana prabhutayo jayante" (Su. Su. 24/5). Dalhana comments on Vamana as "atyanta hruswa shareera," indicating that atihruswa and vamana are the same conditions, occurring due to congenital defects.

Charaka mentions vamanatwa in the context of vataja vamanatwa vikara. Additionally, he uses the term kubjatwa in the same context (Ch Su. 20/11). This raises the question of the difference between vamantwa and kubjatva. It can be classified that vamanatva refers only to short stature, while kubjawa refers to both short stature and an unattractive appearance.

These two conditions may be correlated as follow :-

- Atihurswa or Vamantwa refers to pituitary dwarfism, which is caused by an inherited autosomal recessive disorder and congenital defects of the hypothalamus.

- Kubjatwa, also known as congenital hypothyroidism or cretinism, is a condition characterized by an underactive thyroid gland.

- Atilmoa, which may be present as a clinical feature in certain endocrine disorders, is often associated with Hirsutism found in Cushing's syndrome (excess glucocorticoid), adrenal androgen excess, and gonadal hormone excess (polycystic ovary disease).

- Aloma, the complete loss of hair in any endocrainial disorder, has no explanation in modern science. However, in cases of Hypopituitarism (deficiency of

LH), auxiliary and pubic hair may become sparse or even absent, which can be considered as aloma.

- Atikrushna, a condition that may be correlated with hyper melanin pigmentation caused by inadequate glucocorticoid secretion, lacks a clear explanation in modern science.

- Atigoura refers to a condition where the color of the body becomes very whitish. Additionally, the development of vitiligo may also occur, which can be considered as atigoura.

- Atisthula, a disease described in detail by Charaka, is believed to have a familial and genetic predisposition, as mentioned in the nidana "beejasvabhavaschavopajayate" (Cha. Su. 21/4). Chakrapani's commentary suggests that this condition is inherited from the ancestors.

Charaka has referred to several conditions such as javoprodha, krucchavyavayata, daurbalya, daurgandhya, svedabhada, Atikshudha, Atitrushna, and Ayuhras as Sthula dosha. Additionally, he mentions the term "Sadakshuyatygani," which implies impaired metabolic function. This condition may be associated with Cushing's syndrome, characterized by an excess of glucocorticoids, as it exhibits all the symptoms of Atisthulata. Other conditions such as hypothalamic tumors and hypothyroidism can also lead to obesity.

Ati-krusha - According to Charaka, the condition known as Ati-krusha is described as "Shushka Spik udara greeva dhamani" (Cha Su 21/5). In modern terms, hyperactivity of the thyroid gland leads to muscle wasting and the development of atikarshya..

Prameha / Madhumeha - This disease is referred to as Kulaja vikara according to the Cha. chi. 6/57 text and janmebala pravutta vyadhi according to the Dalhana su. Su. 24/5 text. The presence of Kloma gata Antaha Vidradi, pipasa, and mukhashosha is explained by Sushruta and Charaka in su. ni. 9/23 and Cha. SU.17, which suggests a pancreatic pathology. Prameha rogi is classified as sthoola krusha according to Cha. chi. 6/15, indicating a pancreatic pathology and insulin resistance. The clinical features of this disease are correlated with diabetes mellitus, which is characterized by hyperglycemia due to deficiency or defective response of insuline

Udakameha - This condition is one of the ten types of Kaphaha meha. It is referenced within the context of meha, which is also recognized as kulaja vikara. This can be associated with Diabetes insipidus, a condition caused by a deficiency of ADH, in which genetic defects are also considered as one of the causes.

Galaganda - Madhukosha expounded that the hanging growth in the neck region, commonly referred to as Galaganda, is caused by the vitiation of Vayu and

Kapha, resulting in the accumulation of Medas gels in the Galapradesha. This, in turn, leads to the manifestation of Vataja, Pittaja, Kaphaja, and Medaja Galaganda (Su. ni. 12/23). Contemporary scholars of the 20th century have drawn parallels between this condition and that of Goitre.

Vataja shotha - is the one of the signs of vatajashotha. This condition can be considered as myxoedema in which non-pitting oedema is present.

Pindikodvestana - It is mentioned in Vataja nanatmaja vikara. It can be correlated with tetany, which is one of the symptoms found in Hypoparathyroidism.

Klaibliya roga - Charaka has mentioned 4 types of klaibhya roga in (Cha. chi. 30/154)

- Beejadoshaja
- Dwajopagataja
- Jaraja
- Shukra kshayaja

i) Hyperprloactinaemia
ii) Hypopituitarism (LH)
iii) Hypogonadism

Narashanda - This may be correlated to Adrenal androgen excess in adult male, which may cause feminization.

Klineflter's syndrome - Turner's syndrome are considered in this.

Yonivyapat - Several diseases explained under yonivyapat will suggest endocrinal abnormality. Charaka explains beeja dosha and daiva as nidana for yonivyapath that is the diseases are.

Shandi - this condition considered as adenohyposis

Vandya - means "*vandya nashtartavam*"conditions are hypopitutarism. Cushing's syndrome.

Shuska - These oonditions can be taken as hypoestrogenic.

Arakaska or anariava- These two conditions can be considered under

- Hyperprolactinaemia
- Cushings syndrome
- Decreased LH
- Polycystic ovary disease

In this manner the above-mentioned conditions, may be taken as Endocrinal disorders.

But syndromes explained in modern science are exceedingly difficult to correlate with anyone of the Ayurvedic disease. These conditions may be taken as Vyadi sankara.

Atyagni / Bliasmaka - Explained by Charaka, Susruta, Madhavakara and Bhavapraksh.

In modern terminology it is correlated to hyperthyroidism in which there is increased appetite, perspiration, heat tolerance.

नरे क्षीणकफे पित्तं कुपितं मारुतानुगम् २१७

स्वोष्मणा पावकस्थाने बलमग्नेः प्रयच्छति
तदा लब्धबलो देहे विरूक्षे सानिलोऽनलः २१८

परिभूय पचत्यन्नं तैक्ष्ण्यादाशु मुहुर्मुहः
पक्त्वाऽन्नं स ततो धातूञ्छोणितादीन् पचत्यपि २१६

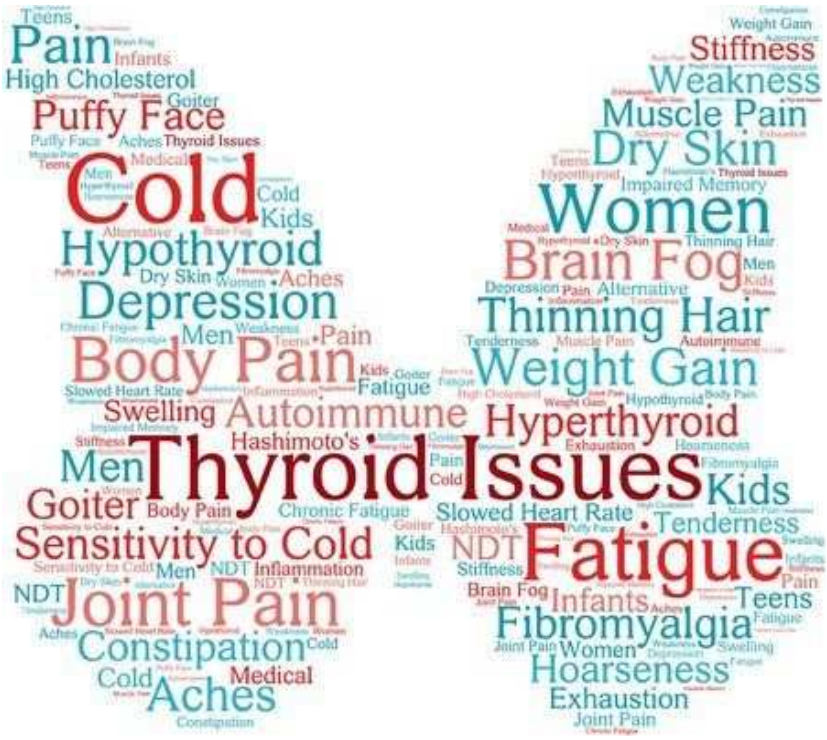
ततो दौर्बल्यमातङ्कान्मृत्युं चोपनयेन्नरम्
भुक्तेऽन्ने लभते शान्तिं जीर्णमात्रे प्रताम्यति २२०

तृट्श्वासदाहमूर्च्छाद्या व्याधयोऽत्यग्निसंभवाः

Charak Chikstha Sthana 15

Mandagni - Hypothyroidism.

AYURVEDA AND THE THYROID GLAND



The Ayurvedic texts do not explicitly refer to the thyroid gland; however, there is recognition of a condition known as Galaganda, which is distinguished by the swelling of the neck. The initial account of swelling in the neck was documented in the Atharva Veda, the final of the four Vedas, under the term "apachi." Charaka mentioned the disease under 20 sleshma vikaras in ***Sareera Sthana*** has mentioned that of the seven layers of the skin,

the sixth layer ***Rohini*** is the seat of Galaganda. In the Nidana Sthana, Galaganda is delineated as a pair of encapsulated protuberances, varying in size, situated in the anterior region of the neck., which hang like scrotum, whereas Charaka mentioned Galaganda as a solitary swelling.

The main etiological factors of Galaganda include climatic conditions, water supply, and dietary conditions. According to Susrutha, the occurrence of Galaganda may be attributed to rivers flowing towards the east. Bhela further explained that Sleepda and Galaganda are more prevalent in the prachya desa (eastern part) of the country, and individuals who consume a fish-based diet are susceptible to developing Galgaganda. Harita Samhitakara described the role of contaminated water (dustambu) and infection (krimi dosha) in the precipitation of Galaganda. ***Kashyapa Samhitakara*** added that any part of the **country** that is cold, damp, with densely grown long trees, water stagnation and heavy rains may be prone for the development of Galaganda.

A condition of Galaganda accompanied by respiratory difficulties, general body weakness, softening of the body, loss of appetite, loss of voice, and a chronic duration exceeding one year should be deemed incurable by medical practitioners. Despite the antiquity of these observations, it remains an acknowledged truth that environmental factors, particularly iodine, significantly influence the proper functioning of the thyroid gland. Any

imbalance in iodine metabolism can upset the thyroid condition; either too much or too little iodine can result in the development of goiter. So, the areas where the soil is depleted, also the soil content in which food grows, the drinking water and goitrogenic foods, play a vital role in disease process. As far as consuming fish or any seafood goes, all a rich source of iodine, an excess may be a causative factor.

From the above description we can say that Galaganda is a condition related to thyroid gland. However, it is important to note that hypothyroidism is not solely confined to a specific region of the body; rather, it manifests with various symptoms that affect multiple systems. Therefore, it is advisable not to limit the understanding of hypothyroidism solely to the concept of Galaganda as described in classical texts.

CONCEPT OF AGNI and THYROID GLAND

The term "Agni," in colloquial language, refers to fire in the context of the functioning of a living organism. This fire maintains the organism's integrity and conducts its vital activities by converting food through various bio-physical processes. The food is consumed in diverse ways, such as licking, chewing, and drinking, and is not only transformed into its structural and functional constituents but also provides the necessary energy, known as "Shakti," for the

organism's numerous vital activities. It is important to note that the term "Agni" does not mean fire.

In this context, the term "Agni" encompasses various factors that participate in and direct the process of digestion and metabolism in a living organism. Fire, or "Agni," is commonly used to cook food and make it suitable for digestion. Similarly, in chemical laboratories, heat energy is used to decompose, disintegrate, separate, or break down substances and accelerate diverse types of chemical reactions. Likewise, the digestion of food in the stomach and small intestine, referred to as "Amashaya" and "Pachyamanashaya" respectively, involves the breakdown of complex food substances into simpler components.

This breakdown includes the conversion of complex proteins into amino acids, fats into fatty acids and glycerol, and starches into glucose, as described in modern physiology. This breakdown process, which renders the food suitable for absorption, is made possible by the presence of "Kayagni," which refers to the digestive juices containing powerful enzymes, acids, and bases. In Ayurveda, these factors are collectively referred to as "Kayagni" or, more specifically, "Pachak Agni" (Pitta).

The food substances must be deemed suitable for absorption into the body before they can be utilized for metabolism by the 'Sharira - Dhatus'. From an anatomical and physiological perspective, Agni can be categorized into

two types: Kayagni and Dhatwagni. Kayagni primarily deals with the chemical processes involved in gastrointestinal digestion. However, there are two aspects to Kayagni: general and special.

The general pertains to factors related to the digestion of food materials in the 'Amashaya' and 'Pachyanamashaya', corresponding to gastric and intestinal digestion. The special pertains to the humoral or hormonal mechanisms located in the duodenal mucosa, which are responsible for stimulating the secretion of digestive juices - gastric, pancreatic, and hepatic - necessary for ensuring intestinal digestion.

This Agni and all its aspects are described as pitta by various Acharyas. Pitta is said to be located between the 'Pakwashaya' and 'Amashaya' in its constitution. It is composed of the five elements, has a liquid consistency, and despite this, it functions similarly to fire, mainly due to the dominance of its Tejas component. This is evident from the way it performs chemical actions, such as digesting food and separating the essence from the waste. Additionally, while being situated in its designated place, it also contributes to and enhances the functions of other pittas in the body. The other pittas mentioned above obviously refer to the remaining four, namely Saadhaka, Ranjaka, Aalochak, and Bhrajaka.

However, this interpretation appears to be limited considering the additional references made to 'Kayagni' by

'Vagabhatta' in his works 'Sangrah' and 'Hrudaya'. In the latter work, he establishes a direct connection between 'Pachakagni' and 'Dhatwagni', suggesting that the former contributes moisture to the dhatus. In the 'Sangraha', he directly correlates 'Pachakagni' with 'Dhatwagni' and 'Dhatupaka'. This correlation is further supported by observations made by 'Charaka', 'Sushruta', and 'vagabhatta'. Charaka specifically mentions the 'Madhura' and 'Amla' aspects of digestion (Awasthapaka) in the 'Amashaya', which obviously correspond to the digestion of starch and protein in the stomach.

This observation becomes significant in the context of his reference to the passage of the acidified chyme from the 'Amashaya' to the duodenum, synchronized with the secretion of 'Achchh pitta' (corresponding to the fires) into this area, which consists of the combined pancreatic juice and liver bile. Furthermore, Sushruta's mention of the 'Pitta-dhara kala' as the structure that holds the chyme derived from various types of solid and liquid foods, as it moves from the 'Amashaya' to the 'Pakwashaya', draws attention to the location of the Agni, the specific aspect of which is currently being discussed. Similarly, Wagabhatta's references to the organ 'Grahani' in relation to 'Pachaka pitta' are equally significant. It indicates that the seat of 'Pachakagni' is in the 'Grahani' organ, which is responsible for holding the food in the 'Amashaya' during digestion and identifies the 'Kalaa' in this context as the 'Agnidhara kalaa'.

The aforementioned references from the three significant Ayurvedic classics, when analyzed in light of subsequent advancements in medical science, as is required of us, indicate the following: a) There seems to be a local or regional impact exerted by certain chemical (or hormonal) factors, or a combination thereof, which may primarily be responsible for facilitating the availability of potent digestive juices to the intestine.

These juices are essential for ensuring proper digestion of food. This process occurs under the influence of the acid chyme as it passes through the duodenal mucosa. b) There appears to be a broader systemic influence that regulates and governs tissue metabolism throughout the entire body, either directly or indirectly.

The various endocrine secretions produced by the glands in the duodenal mucosa, such as secretin, pancreozymin, and cholecystokinin, are a few but significant chemical agents. Some of these agents stimulate the secretion of pancreatic juice and the release of bile from the gall bladder. From these references, two important points can be deduced. Firstly, Pachakagni, which is in a specific area between the 'Pakwashaya-Amashaya', contributes to the formation of certain bodily tissues.

Secondly, the components of Pachakagni present in these tissues, when excessively active, lead to their deterioration, while insufficient activity results in their enlargement. These points can be effectively illustrated by

considering the hyper- and hypo-metabolism associated with the overactive and underactive functioning of the Thyroid gland.

In the context of thyroid hormone, a remarkable parallel can be drawn to the functioning of the Kayagni in the dhatus. This hormone exerts a profound influence on tissue metabolism throughout the body, and abnormalities in its secretion have been shown to cause far-reaching metabolic disturbances. It is widely recognized that the thyroid hormone normally activates cellular oxidative processes throughout the body, although the exact mechanism by which it achieves this is not yet fully understood.

Excessive secretion of the hormone leads to a significant increase in basal oxygen consumption by tissues, resulting in hyper-metabolism. Conversely, insufficient secretion of the hormone leads to a reduction in oxidative reaction.

The example of thyroid functioning can be seen as providing some explanation for the apparent paradox presented by the behavior of the 'amshas' of the kayagni furnished to the dhatus - when hyperactive, they lead to wasting, and if hypoactive, to hypertrophy.

स्वस्थानस्थस्य कायाग्नेरंशा धातुषु संश्रिताः
तेषां सादातिदीप्तिभ्यां धातुवृद्धिक्षयोद्भवः ३४
पूर्वो धातुः परं कुर्यादवृद्धः तीराश्च तद्विधम्

Asthang Hruday Suthra Sthan 11

स वैषम्येण धातूनामग्निवृद्धौ यतेत ना
समैर्दोषैः समो मध्ये देहस्योष्माऽग्निसंस्थितः २१५

पचत्यन्नं तदारोग्यपुष्ट्यायुर्बलवृद्धये
दोषैर्मन्दोऽतिवृद्धो वा विषमैर्जनयेद्गदान् २१६

Charak Chikishtha Sthan 15

THYROID GLAND AND YOGA

The initial component of the endocrine system does not pertain to an endocrine gland, but rather refers to the anterior region of the brain situated on the base of the third ventricle, known as the hypothalamus. It is connected to the thalamus and the pituitary gland and serves to bridge them. Hence, it serves as a crucial link between the thalamus of the nervous system and the pituitary of the hormonal system.

The hypothalamus exercises control over various bodily functions, including but not limited to body temperature, appetite, thirst, hydration, and sexual activity. Additionally, it is associated with emotions and sleep, and it accomplishes all these tasks by regulating the involuntary operations of the nervous system via the pituitary gland. Not all its functions are completely understood.

In Ayurveda we consider it as our Crown Chakra (SAHASTRARA) which takes care of harmony with our relationship. The relationship exists not only among diverse systems within us, but also between us and nature, between us and our possessions, and between us and our emotions. It is crucial to note that if this relationship remains in a state of harmony, the regulation of hormones will be maintained at normal levels.

The subsequent component of the endocrine system is the pituitary gland, which serves as the central command center of the hormonal system. It relates a complex variety of hormones that control growth, protein synthesis, sexual functions, and the metabolic function in general.

It controls so many hormone secretions that not all have been isolated or understood. The regulation of these secretions is achieved through the reception of information from the brain, specifically the hypothalamus, which can either stimulate or inhibit the process. Additionally, the

intricate feedback system involves communication with numerous other endocrine glands.

The third endocrine gland is the pineal gland. The role of the pineal gland is the one least understood by modern allopathic medicine. The pineal gland produces melatonin (along with the serotonin). Indeed, there exists a significant amount of ambiguity regarding the role of these two hormones. It is established that they engage in interactions with the adrenals, thyroid, testes, and ovaries. Despite the plethora of hypotheses, further investigation is imperative, as any hormonal irregularity can significantly impact the entire endocrine system. Ayurveda posits that a primary function of the pineal gland is to establish a connection between the physical and subtle bodies.

Thus, before understanding these 2 glands as per Ayurveda, we need to understand the Ayurvedic aspect of human beings.

According to Ayurveda , a human being is two halves joined together. The composition of these entities consists of two distinct poles, namely SHIVA (representing the positive aspect) and SHAKTI (representing the negative aspect). It is imperative to maintain a perpetual equilibrium between these two poles. This delicate balance is regulated by a specific point situated between the third eye and the posterior region of the skull. This controls all functions of our body.

The thyroid gland, being the fourth gland, assumes the pivotal responsibility of governing the fundamental metabolic processes within the body. Additionally, it plays a crucial role in the regulation of growth during the initial stages of life and contributes to the maintenance of calcium levels in the bloodstream. However, it is worth noting that our comprehension of the entirety of the thyroid's functions remains incomplete.

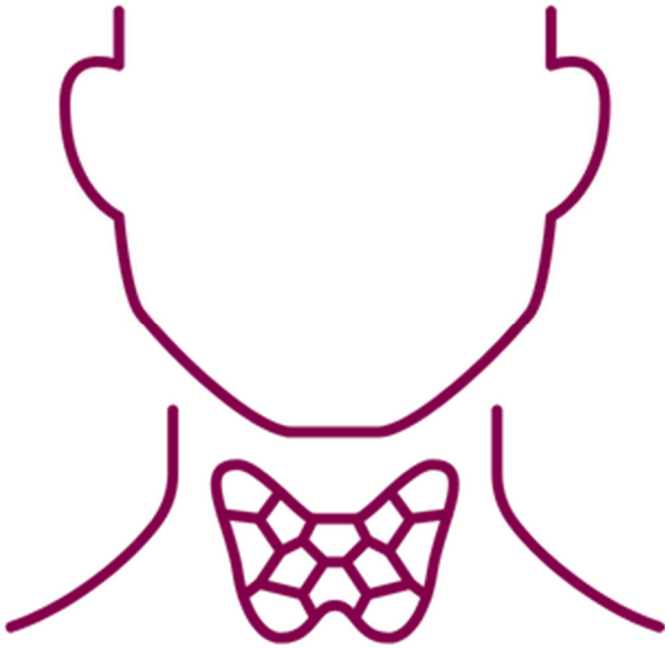
The fifth endocrine function is controlled by the Parathyroid which regulates the levels of calcium and phosphorus in the blood. This balance is critical for good bone growth and maintenance. Some aspects of the parathyroid glands are not completely known.

The sixth endocrine gland is the thymus. A significant portion of its function remains enigmatic to contemporary scientific understanding. It is acknowledged to be involved in both growth and immune system functionality. Ayurveda attributes a connection between the thymus and KAPHA, as well as to some extent, the concept of Ojas. As per Ayurvedic principles, the thymus retains its significance in the adult stage.

These three glands in Ayurveda are under 5th Chakra (Vishudha). This is main Centre of creation. All artistic creations, including poetry, paintings, and various skills, originate from this source. When we are stuck with our creative forces this chakra is blocked giving rise to problems in these hormones


Crown Chakra
Third Eye Chakra
Throat Chakra
Heart Chakra
Solar Plexis Chakra
Sacral Chakra
Root Chakra

ROLE OF AYURVEDA IN THE MANAGEMENT OF ENDOCRININE DISORDER'S



Prior to commencing any Chikitsa for a specific ailment, it is imperative to have a thorough understanding of the etiopathogenesis of said ailment. Subsequently, the Chikitsa should be tailored accordingly. Charaka elucidates this concept in Sutrasthana 18 / 44-48. If the physician is unable to diagnose or name the ailment, they need not feel ashamed as there are numerous means available for naming and diagnosing in this universe.

However, the vitiation of different doshas manifests in various diseases in different sthanas. Therefore, the physician must commence treatment based on the Rogaprakruti, Adhisthana Samithana Vishesha, and a comprehensive understanding of these factors. A knowledgeable physician is one who possesses an understanding of three factors i. e.

1) Rogaparakriti (Vyadhi swabhava)

2) Adhisthana and (Amashaya pakwashaya / pakwamashaya)

3) Samulthana vishesha (Nidana / Hetu)

It is imperative for the physician to promptly commence treatment after acquiring knowledge of the Vyadhi, Prakriti, Adhisthana, and Hetu of the disease. It is a challenging task to elucidate the Diagnosis, Pathophysiology, and Chikitsa for each endocrine disease.

In instances where the physician is unable to do so, adherence to the principles is recommended. Sushruta's (Su. Su. 20/9) suggests that in the case of roga samuha, one must study satmya, desha, kala, deha, agni, prakriti, bala, and satwaadi. The proficient physician must possess knowledge of the aforementioned factors and administer appropriate medication to the patient.

REMEDIES

The United States is currently grappling with an epidemic of diseases that are linked to the endocrine system. These diseases include but are not limited to diabetes, metabolic syndrome, insulin resistance, adrenal fatigue, hypothyroidism, hyperthyroidism, and several others, affecting more than half of the population.

When the endocrine system is compromised, individuals may experience a range of health issues such as weight gain or loss, fatigue, depression, heart disease, and hair loss. Additionally, endocrine system disorders can weaken the immune system, making individuals more susceptible to illnesses and infections.

It is therefore advisable to prioritize disease prevention over treatment. To this end, we present seven

steps towards natural endocrine system health that can help individuals maintain optimal health and well-being. These steps are equally essential for individuals with existing endocrine imbalances, as they can aid in the journey towards health and wellness.

1. Address Excessive Stress

It is widely acknowledged that stress has detrimental effects on our health. However, altering our stressful lifestyles in a society that endorses stress is akin to swimming against the current. Nevertheless, the difficulty of a task does not render it impossible. Stress is a significant contributor to illnesses in the endocrine system. It depletes the adrenals, leading to adrenal fatigue, which is characterized by extreme exhaustion, burnout, depression, and sometimes insomnia. When an individual is under stress, their adrenals produce cortisol. Prolonged and excessive levels of cortisol can result in various health issues, such as heart disease, diabetes, extreme fatigue, weight gain, and osteoporosis.

Therefore, it is imperative to be the fish that swims upstream. One should assess their life to simplify it and reduce stress. Engage in activities that promote well-being, such as yoga, spending time in nature, taking relaxing vacations, and engaging in regular physical activity. It is crucial to find time for rest and relaxation every day to attain inner peace.

2. Avoid Environmental Toxins

We reside in a noxious world, where various factors contribute to the contamination of our daily lives. These include inadequate air quality, the utilization of harsh chemical cleaners, and the consumption of water from plastic bottles, all of which have been scientifically proven to contain endocrine disruptors. Numerous endocrine disruptors have been established to be the cause of various forms of cancer, including ovarian, thyroid, and breast cancer.

To mitigate exposure to a significant number of endocrine-disrupting chemicals, one can adopt certain practices such as consuming organic foods (as many pesticides are known to be endocrine disruptors), refraining from using plastic containers for food and drink, and exclusively utilizing natural beauty products and household cleaners. The following is a brief compilation of toxins present in the environment that adversely affect the endocrine system:

Bromides: These substances are found in hot tubs, bakery items, soft drinks, plastics, and even soft drinks themselves. They have a detrimental impact on the thyroid gland. - Triclosan: This compound is commonly found in numerous cleaning products, antibacterial soaps, and beauty products. It is a recognized endocrine disruptor, particularly associated with reproductive disorders.

Phthalates: These chemicals are frequently employed to soften plastics, thus being present in flexible plastics like water bottles, as well as hair spray and nail polish.

3. Support the Endocrine System with Adaptogen Herbs

Adaptogenic herbs can be characterized as providing profound nourishment for our comprehensive well-being. They possess the ability to fortify, invigorate, and nurture our bodily systems, thereby promoting enhanced overall health.

Ashwagandha (Withania somnifera) Derived from the Ayurvedic tradition, ashwagandha is a highly esteemed herb renowned for its ability to promote the restoration of endocrine system health. This can also be a very important herb for people with adrenal fatigue.

Licorice (Glycyrrhiza glabra) Licorice provides direct support to the adrenal glands, which are a vital component of the endocrine system.

4. Sleep:

Habitual and profoundly rejuvenating sleep is one of the most influential practices for promoting the well-being of the endocrine system. Even a mere instance of sleep

deprivation can lead to a disruption in hormonal equilibrium. However, it is disconcerting that numerous individuals persistently endure insufficient and inadequate sleep. Societally, there exists a tendency to belittle those who prioritize ample sleep, labeling them as indolent and mockingly referring to them as "sleepy heads". Nevertheless, it is crucial to recognize that consistent and restorative sleep is not a superfluous indulgence.

It is a foundation for your overall health and well-being. The attainment of a peaceful slumber can, in fact, enhance one's productivity. In both Traditional Chinese Medicine and Ayurveda, it is advised to retire to bed prior to 10 pm. While the required duration of sleep may vary among individuals, the crucial aspect lies in awakening feeling rejuvenated and prepared for the day ahead. Should one encounter challenges in falling asleep or experience frequent awakenings during the night, the incorporation of herbal remedies and adjustments in lifestyle can help.

5. Healthy Eating for Endocrine Health

There is simply no one way for all people to eat. An individual may require an increased intake of protein or fats within their dietary regimen, whereas another individual may experience enhanced well-being by adhering to a vegetable-based diet. However, there are a few key

principles when considering how to eat in a way that supports the endocrine system Fish can also serve as a valuable reservoir of Omega 3 fatty acids, which assume a pivotal role in maintaining optimal endocrine system well-being (Be sure to avoid farmed fish.)

6. understanding of one's weaknesses:

In some ways it is a blessing to know your weakness. If you know where the weakness is, you can support yourself daily to avoid further complications. Numerous ailments pertaining to the endocrine system can be effectively ameliorated or even reversed through the diligent practice of self-care.

Nonetheless, neglecting to address the issue of excessive sugar consumption despite being aware of suboptimal blood glucose readings, or failing to mitigate the effects of adrenal fatigue despite being cognizant of its presence, will inevitably result in adverse consequences in the future.

7. Nourish Yourself

Establishing a consistent period of personal time during which you indulge in self-care is akin to nourishment for both your soul and endocrine system. How frequently do you accord priority to joy, rest, and leisure in your life?

How often do you consistently engage in restorative practices such as yoga, meditation, and spending time in nature to take care of your body? Is it infrequent? If so, what is the reason for the delay? It is imperative that you prioritize your well-being and good health.Planning of Treatment

''Vikaranamakusalo na jihriyat kadachana Nahi sarva vikaranam namoto asti dhrivasthitih''.||

Cha Chi. 18/44

Ayurveda does not place emphasis on the precise nomenclature of diseases; instead, it strongly advocates for the diagnosis of the constitutional status of the disease, as mentioned in Charaka.

Based on Ayurvedic principles, the following are the basic considerations in treating thyroid disorders:

Genetical and hereditary defects come under ***Adibala Pravritta Vyadhis***, so no treatment is suggested.
Congenital defects fall within the category of Janmabala Pravritta Vyadhis [21], denoting ailments that are present from birth. i. e., congenital defects). Thyroid gland agenesis, dysgenesis, and ectopic thyroid gland fall within this classification.

Iodine deficiency stands as the primary and prevalent factor contributing to the occurrence of hypothyroidism. So ***'Sarvadha sarva bhavanam samanyam vriddhikaranam'*** applies here.

Autoimmunity is a prevalent underlying factor, thus necessitating the recommendation of immunomodulatory medications in this case.

Side-effects of surgery and radiation: ***Kasta Sadhya*** (difficult to treat).

No specific treatment is necessary for transient hypothyroidism.

If there is functional loss of thyroid tissue, or functional defects, thyroid stimulatory drugs are beneficial. Selection of drugs acting at various levels: - At the hypothalamo - pituitary level: anti-stress drugs, Medhya Rasayana drugs, and Nasyakarma may provide benefits. - At the thyroid gland level: thyroid stimulatory drugs are recommended. - At the metabolism level:

Deepana, Pacahana, and Lekhana drugs, which enhance body metabolism, are recommended. - Immuno modulatory drugs are suggested for hypothyroidism related to autoimmune conditions.

The principle of 'Samprapti vighatana' holds significant importance in the field of medical treatment.

Regardless of the underlying cause of a disease, it often leads to a state of hypoactivity in the thyroid gland, resulting in a decrease in the body's metabolic rate. Therefore, the primary objective of treatment should be to stimulate the thyroid gland. In this regard, thyroid stimulatory drugs such as Guggulu should be carefully selected for the treatment of the disease. As the symptoms of hypothyroidism are well-known, symptomatic treatment should be tailored to suit individual cases, such as those presenting with obesity or menstrual irregularities.

DIET REGIMEN AND MEDICATIONS

It has been noted that certain foods such as milk, barley, green grams, Bengal grams, sugarcane juice, cucumber, and milk products are beneficial for maintaining thyroid health. Conversely, sour products have been found to exacerbate thyroid conditions such as hyperthyroidism and hypothyroidism. Consumption of goitrogenic foods, including rapeseed, cabbage, Brussels sprouts, broccoli, cauliflower, sweet potatoes, maize, lima beans, soya, and pearl millet, should be limited.

These foods contain natural goitrogens, which are chemical compounds that interfere with thyroid hormone synthesis and cause enlargement of the thyroid gland. While cooking can reduce the effectiveness of goitrogens, it is advisable to avoid consuming these foods in their raw form.

Smoking has been found to depress thyroid hormone (TH) levels and cause chronic underlying hypothyroidism. Research indicates that nicotine enhances the synthesis of T3 from T4 in the brain, while alcohol and opiates impede the breakdown of T3 in the brain. It is recommended to include iodine-rich foods such as kelp, beetroot, radish, parsley, potatoes, fish, oatmeal, and bananas in one's diet. The Ayurvedic approach to treating specific thyroid problems involves the use of potent herbs such as Kaanchanara (Bauhinia veriegata) and Guggulu (Commiphora mukul).

Other herbs like jatamansi, shilajit (purified asphaltum), gokshura, punarnava, Ashwagandha, Shatavari, Triphala, Trikatu, Tulsi, Bala, and Naagbala are also utilized for their therapeutic properties and to manage symptoms associated with thyroid dysfunction. Additionally, some herbo-mineral preparations such as Mukta-pishti or Pravaala-panchaamrit, ArogyavardhiniVati, etc., are recommended.

Iodine deficiency affects individuals with both hyperthyroidism and hypothyroidism, and therefore, it is advisable to consume iodized salt and foods that are rich in iodine. Drinking water stored overnight in a clean copper vessel is believed to improve this condition.

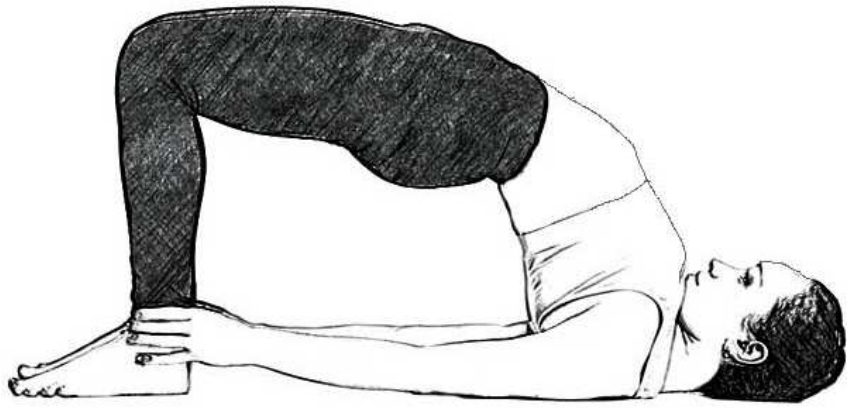
VIHARA

Exercise plays a significant role in the treatment of hypothyroidism. It enhances the sensitivity of tissues to the thyroid hormone and promotes the secretion of the thyroid gland. Engaging in a daily exercise routine lasting between 15-20 minutes is beneficial for individuals with hypothyroidism. The exercise should be sufficiently intense to elevate the heart rate, such as activities like walking, swimming, running, and cycling.

However, individuals with generalized hypotonia should exercise caution as they may be susceptible to ligament injuries, particularly when excessive force is exerted on joints. It is important to note that both physical and emotional stress can hinder the secretion of the thyroid gland by reducing thyrotrophin output.

Therefore, minimizing stress is crucial for the proper functioning of the gland.

YOGA FOR THYROID DISEASES



In the realm of illness, the impact of stress on the body cannot be disregarded, and meditation can prove to be highly efficacious. The practice of yoga serves to stimulate and normalize the functioning of various glands, namely the thyroid, pituitary, pineal, and adrenal glands.

Additionally, it promotes flexibility and stretching of the neck, while simultaneously strengthening and toning the nervous system. Remarkably, yogis had already devised techniques to maintain healthy glands and metabolism long before the discovery of thyroid glands by medical science, incorporating these practices into their system of enlightenment. Among the various asanas, Sarvangasana, or the shoulder stand, stands out as the most suitable and effective pose for the thyroid gland.

This powerful posture exerts significant pressure on the gland, which, due to its extensive blood supply, experiences a notable improvement in circulation and the expulsion of stagnant secretions. Following Sarvangasana, the practice of Matsyasana (fish pose) and Halasana (plough pose) also prove to be beneficial. Other effective asanas include Surya Namaskara (Sun salutation), Pavanamuktasana (wind relieving pose) with a focus on head and neck exercises, Supta Vajrasana (sleeping thunderbolt pose), and all backward bending asanas.

PRANAYAMA

Insufficient energy flow through the nadis is evident in the form of decreased mental activity, fatigue, and diminished sensory perception. According to Ayurvedic principles, the human body contains a total of 72,000 nadis. Among these, the Pingala nadi, which carries the energy of the sun, and the Saraswati nadi, which branches out from the throat chakra and supplies prana to the mouth and throat region, hold particular significance for the thyroid gland. Pranayama techniques that specifically target these nadis can be beneficial for the health of the thyroid gland.

Among these techniques, ujjayi pranayama is considered the most effective. By focusing on the throat, this practice exerts both relaxing and stimulating effects, likely due to the activation of ancient reflex pathways within the throat area, which are regulated by the brain stem and hypothalamus.

All of these practices contribute positively to the well-being of the thyroid gland. Additionally, Surya, Chandra, and Nadi Sodhana pranayama (right, left, and alternate nostril breathing) can be employed to restore metabolic balance.

AYURVEDIC REMEDY FOR THYROID

- Ingest a mixture of AMLA (Indian gooseberry) CHURNAM (paste) and Honey in the early morning before consuming breakfast.

- The application of a fine paste made from the vegetable jalakumbhi (Pistia straticies) on the affected area aids in reducing swelling. Additionally, the juice derived from jalakumbhi should be administered in doses ranging from 11 to 22 grams per day. This juice enhances the iodine content, which, according to Allopathy, is one of the contributing factors to the disease.

- Coconut oil holds enormous potential for individuals suffering from hypothyroidism and slow metabolism. The medium chain fatty acids (MCFAs) or medium chain triglycerides (MCTs) present in coconut oil offer numerous health benefits and are abundantly found only in coconut oil.

- Cow urine, when consumed in small quantities immediately after collection, particularly from a local breed cow, is an effective remedy. Continue this regimen for a period of 30-45 days without interruption until improvement in the thyroid gland is observed.

CONCLUSION

Although endocrinology is not systematically explained in Ayurvedic classics, it can be inferred from various contexts and references that some ideas were present. The concept of srotas, as explained by our acharyas, may be applicable to the concept of endocrine glands. Some of the classifications made in Ayurveda can be categorized under srotogata vikara and Trivida roga, as explained by - SUSHRUTHA.

Many Ayurvedic disorders mimic certain endocrine diseases, while others are grouped under syndromes known as Vyadhisankara in our classics.

It is not a matter of shame for a physician to be unable to diagnose or name a disease. The physician should treat the patient based on a proper understanding of factors such as Roga - prakriti, Rogadhisthana, and samuthanavishesha.

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