



HYPOTHYROIDISM IN AYURVEDA - A CONCEPTUAL STUDY

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ABSTRACT

Hypothyroidism is a clinical syndrome resulting from insufficient production of thyroid hormones, which is a common endocrinal disorder seen all over the world. It affects the metabolism of the body even at cellular level and can affect any organ virtually. The incidence of hypothyroidism is rising rapidly. It is estimated to have affected 2-5% of global population. It is more prevalent among females. The symptoms of hypothyroidism are notorious for their non specific nature and for the way in which they mimic symptoms of other systemic diseases. It leads to a long life of pathological events and makes the affected person to remain dependent on hormonal replacement throughout his life.

Thus, there is an increasing demand to understand the disease in view of Ayurveda and to establish the management through Ayurvedic system of medicine. On reviewing the clinical presentation from all classical texts it is found that in hypothyroidism there is abnormality of *Jatharagni* and *Dhatwagni* along with abnormality of *Kapha* and *Vata Dosha* as well as *Rasavaha*, *Raktavaha*, *Medovaha*, *Sukravaha* and *Manovaha Srotases*. *Dosha-dushyasamoorchhana* in various *Dhatu*s results in the systemic manifestation of the disease. Thus, the line of treatment involves *Deepana*, *Pachana*, *Srotoshodhana* and *Kapha vata shamana*.

INTRODUCTION

The concept that lifestyle is responsible for the genesis of a disease is very old and well known in Ayurveda. Now a days, there has been a drastic change in the dietary habits and lifestyle of individuals due to modernization and influence of western culture. Unhealthy eating habits, along with sedentary lifestyle, cause various diseases including metabolic disorders.

The Thyroid gland is considered to be one of the most important organs of the endocrine system as it regulates nearly all the bodily functions including metabolic, respiratory, cardiovascular, digestive, nervous and reproductive system either directly or indirectly. Lack of thyroid hormone or resistance of the body tissue to the thyroid hormone with respect to metabolic demand results in disorder called hypothyroidism. Hypothyroidism is posing a major health challenge in both developing as well as developed world. There is 2 - 5 % prevalence of hypothyroidism in developed world^[1]. The prevalence of subclinical hypothyroidism in the developed world is approximately 4-15%. The prevalence of hypothyroidism in urban India is 10.95%. Major portion of hypothyroidism (approximately 3.47 %) remains undetected. Incidence of hypothyroidism is more in females and elderly patients^[2].

Auto immunity plays a significant role in the etiology of hypothyroidism. The disease hypothyroidism causes complications like dyslipidemia which is a major risk factor for many serious illnesses and thyroidism itself in its peak can result in threatening condition^[3]. Thus, it leads to a long life of pathological events and makes the affected person to remain dependent on hormonal replacement throughout his life. Hence, there is an increasing demand to understand the disease in view of Ayurveda and to establish the management through Ayurvedic system of medicine.

This review is carried out with an aim to understand the disease Hypothyroidism in Ayurvedic principles and to formulate the Ayurvedic management protocol. The presentation of Hypothyroidism is reviewed critically by studying the pathogenesis and symptoms from various research databases and classical texts. The symptoms are studied in terms of imbalance of *Dosha*, *Srotas*, *Agni*, etc and an effort is made to obtain a standard possible *Samprapti* of hypothyroidism and line of treatment as per Ayurvedic principles.

MATERIALS AND METHODS

This study was carried out by literature search and critical review of the obtained facts. The pathogenesis of hypothyroidism was studied from modern pathology textbooks of various authors and by searching various online medical research databases like pubmed, Google scholar, and other national research databases.

The study of various Ayurvedic texts were made critically and an effort is made to understand the complete pathogenesis of hypothyroidism in terms of *Dosha, Dushya, Agni, and Srotas*.

OBSERVATION AND DISCUSSION

There are two major thyroid hormones -T3 and T4 which effects all body systems either directly or indirectly at all stages of life. Thyroid hormones also promote growth as they enhance amino acid uptake by tissues and enzymatic systems involved in protein synthesis thus promoting bone growth. Carbohydrate metabolism is also regulated by the thyroid hormone as it stimulates glucose uptake, glycogenolysis, gluconeogenesis. These actions may be compared to functions of *Rasavaha Srotas* as it supplies nutrition and energy to all body tissues. They help in fat metabolism by mobilizing lipids from adipose stores and accelerate oxidation of lipids to produce energy. Lipid metabolism can be compared to functions of *Medovaha Srotas*. Thyroid hormones also increase basal metabolic rate (BMR) in all tissues except brain, spleen and gonads. This results in increased heat production, increased oxygen consumption. This increased metabolic rate also results in increased utilization of energy substrates causing weight loss. These actions can be compared to the functions of *Agni* in the body^[4]. The adrenergic receptors in the blood vessels are also increased by the action of thyroid hormone leading to regulation of blood pressure. Thyroid hormone play a vital role in tissue growth particularly in skeletal, nervous system and reproductive system Cardiovascular action of thyroid hormones are to increase cardiac output, heart rate and contractility. They affect the respiratory system indirectly through increased BMR causing increased demand for oxygen and increased excretion of carbon dioxide^[5]. These physiological actions if looked from an Ayurvedic perspective are the action of *Pitta* and *Vata Dosha* in their normalcy. The *Srotases* affected by thyroid hormone are mainly *Rasavaha Srotas, Mamsavaha Srotas, Medovaha Srotas, Asthivaha srotas, Sukravaha Srotas*.

ETIOLOGY/ NIDANA

Hypothyroidism is caused by inadequate function of the thyroid gland itself called Primary hypothyroidism or by not getting enough stimulation by thyroid stimulating hormones called Secondary hypothyroidism.

Primary hypothyroidism is caused by iodine deficiency, autoimmune disease (Hashimoto

Thyroiditis), radiation therapy, drugs or thyroid surgery^[6]. So far as, Ayurvedic *Nidana* is concerned, the etiological factors related to *Kapha- Vata Prakopaka, Agnimandya Janaka and Rasapradoshaka Nidan* may be responsible for the genesis of hypothyroidism.

PATHOGENESIS / SAMPRAPTI

Primary Hypothyroidism results from two mechanisms:

1. Deficiency of Thyroid Hormones – caused by destruction of thyroid follicles, as in Hashimoto's thyroiditis (Autoimmune disorder)
2. Resistance of peripheral tissues to thyroid hormones

In Ayurveda, we can consider these two pathologies in the following way:

1. Dhatukshaya janya (Beejadosha janita)

Due to *Apathya nidana sevana* and also *Bijadosha*, there is *Tridosha dushti* leading to *jatharagni mandya*, which causes *Dhatwagnimandya*, leading to *Uttarrottara dhatu vikriti*, ultimately causing *Oja vikriti*. This *Vikrita ojas* (in this case it is often caused by the presence of *Pitta dosha*) affects the *Vyadhi kshamatva* of the body, attacking the thyroid gland and the autoimmune condition develops. Thus, it is a *Kapha-pitta samsarga* condition.

2. Avarana janya

Thyroid hormone functions are similar to the functions of *Agni (Jatharagni, Dhatwagni and Bhootagni)* in our body causing transformations /tissue metabolism at various levels and thus maintaining the BMR. *Agni mandya* at any level due to *Kaphakara nidana* results in increased *Dhatugata mala sanchaya*, resulting in *Srotorodha* causing compromised *Dhatu saras* leading to both physical and mental features in hypothyroidism. *Vata* acts as a *Yogavahi* in aggravating the *Kapha dushti*. Thus, it is a *Vata-kapha samsarga* condition.

Samprapti Ghatakas

Dosha – Vata-Kapha

Dushya – Rasa, Rakta, Mamsa, Meda, Asthi, Shukra

Agni – Jatharagnimandya, Dhatwagnimandya

Srotodushti – Sanga, Vimargagamana

Rogamarga – Bahya, Abhyantara, Madhyama^[7]

CLINICAL PRESENTATION/ ROOPA

As discussed above, Hypothyroidism results in slowing down of the metabolic process. It usually results in a number of clinical signs and symptoms. The severity of the signs and symptoms depends on the degree of thyroid dysfunction and the time course of development of the disease. The symptoms of hypothyroid are very nonspecific.

However common presentations of hypothyroidism along with its Ayurvedic perspective

Table 1 : Clinical presentations of Hypothyroidism w.r.s. to Dosha and Srotas involvement

Clinical presentation [8,9,10,11]	Dosha involved [12]	Srotas [13,14]
Fatigue, loss of energy	Vata, Kapha	Rasavaha
Lethargy, sleepiness	Kapha	Rasavaha
Weight gain	Kapha	Rasavaha, Medovaha
Decreased appetite	Kapha	Rasavaha
Cold intolerance	Vata, Kapha	Rasavaha
Dry skin	Vata	Rasavaha
Hair loss, coarse, brittle, straw like hair	Vata	Asthivaha
Muscle pain, joint pain	Vata	Asthivaha
Dull facial expression, depression, mental impairment, forgetfulness, inability to concentrate	Vata	Manovaha
Slowed movements	Kapha	Rasavaha, Raktavaha, Mamsavaha
Decreased vision, decreased hearing	Vata	Rasavaha
Menstrual disturbances, infertility	Vata	Artavavaha, Shukravaha
Constipation	Vata	Purishavaha
Paraesthesia	Vata	Rasavaha, Medovaha, Majjavaha
Hoarseness of voice	Kapha, Vata	Pranavaha
Periorbital puffiness	Kapha	Rasavaha
Goiter (simple or nodular)	Kapha	Rasavaha, Mamsavaha, Medovaha
Bradycardia	Kapha	Rasavaha, Raktavaha
Non-pitting oedema, pericardial effusion, abdominal distension, ascites (uncommon)	Kapha	Rasavaha

From the above signs and symptoms, it is clear that in hypothyroidism there is abnormality of *Jatharagni* and *Dhatwagni* along with abnormality of *Kapha* and *Vata Dosha* as well as *Rasavaha*, *Raktavaha*, *Medovaha*, *Shukravaha* and *Manovaha Srotas*.

Cardiac function and cardiovascular hemodynamics is readily regulated by the thyroid hormone T3. Hypothyroidism causes decreased cardiac contractility and cardiac output as well as increased peripheral resistance^[15]. These findings may indicate morbidity of *Rasavaha Srotas* in hypothyroidism. Hypothyroidism patients show elevated total cholesterol and Low density lipoprotein (LDL) cholesterol, and reduced levels of HDL cholesterol, thereby causing higher chances of atherosclerosis and other Cardiovascular Disease (CVD) risk factors, which improve on hormone replacement therapy^[16,17]. These facts support the abnormality of *Medovaha Srotas* in the pathogenesis of hypothyroidism. Hypothyroidism is also known to induce various neurological and mental dysfunctions which supports *Manovaha Srotas* abnormality in this disorder.

PRINCIPLE OF MANAGEMENT / CHIKITSA

The line of treatment with specific target to *Agni*, *Rasavaha*, *Mamsavaha*, *Medovaha*, *Manovaha Srotas* as well as *Vata* and *Kapha Dosha* should be administered in Hypothyroidism.

1. *Dhatwagni Deepana*
2. *Dhatugata mala pachana*
3. *Srotoshodhana*
4. *Vata-kapha shaman*
5. *Manoharshana*
6. *Rasayana*

Classical Yogas which may be used

• *Dhatwagni Deepana*

- *Shaddharanam choornam (Bhaishajyaratnavali Vatavyadhiadhikara 26: 9-10, Bhaishajyaratnavali Urustambachikitsa 28, Sushruta samhita Vatavyadhichikitsa)*
- *Panchakola choorna (Sharangdhara Samhita Madhyama Khanda 6: 13-14)*
- *Vaishwanara choorna (Chakradtta Amavata chikitsa)*
- *Indukanta ghrita (Sahasra yoga - Ghritaprakarana 5)*

• *Dhatugatha Mala Pachana*

- *Pachanamrutam kwatha (Sahasrayoga Kashayaprakarana 39)*
- *Guggulutiktaka kwatha (Ashtanghrudayam Chiktisasthana 21/57-60)*

- *Guduchyadi kwatha* (Sharangdhara Samhita Madhyamakhandha 2/8)
- *Gorakmundi swarasa* (Sharangdhara Samhita Madhyamakhandha, swarasa/16)
- *Chittrakadi kashaya* (Sushruta chikitsa - 14/4)
- *Shiva gulika* (Ashtanga Hrudaya Uttarasthana 49 / 293)
- **Srotoshodhana**
 - *Vamana - (kapha chedana) – Madana pippali, vacha, Yashtimadhu, Saindhava, honey*
 - *Virechana – Mishraka sneha*
 - *Nasya – Shadbindu Taila* (Bheshaj Ratnavali Shirorogadhikara 49 – 51), *Anu taila*
- **Vata Kapha Shamana – Doshapratyanika chikitsa**
 - *Ashtavarga kvatha* (Sahasrayoga – Vatarogachikitsa.)
 - *Navaka guggulu* (Bhaishajya Ratnavali Medoroga Chikitsa 39/43)
 - *Punarnavadi kwatha* (Bhaishajya Ratnavali Udararoga 43-44),
 - *Asanadi kwatha* (Astangahradayam Sutrasthana 15/20)
 - *Guggulu tiktaka ghrita* (Astangahrudayam Chiktisasthana 21/57-60)
- *Manoharshana*
- *Rasayana – Gudabhallataka Ghritam, Lashuna Ksheerapaka, Shilajatu⁽⁷⁾*

CONCLUSION

Although the disease hypothyroidism as such is not described in classical Ayurvedic texts. We have come to an understanding that Hypothyroidism is primarily under activity of *Agni*. Due to various *Hetus*, there is diminished *Agni* at *Dhatu* level. There is *Sanga* in various *Srotas*. Hence, the related *Dhatu* functions are also impaired. Consequently, the *Dhatu*saras are compromised leading to both physical and mental symptoms. Hence, Hypothyroidism is mainly a *Vata – Kapha samsarga* condition in which *Vata* acts as a *Yogavahi* in aggravating *Kapha dushti* and the various systemic manifestations of the disease are due to *Dosha-dushya samoorchana* at various *Dhatu*s. During the treatment of hypothyroidism all these pathogenetic factors have to be targeted with special attention to strength of body, mind, and *Dosha*.

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