

Understanding The Hypothyroidism Through Reverse Dravyaguna Ideology

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Abstract:

Purpose: An essential endocrine gland, the thyroid gland secretes thyroid hormones that control the body's fundamental metabolic rate. Deficiency of these hormones or resistance of body tissue to these hormones concerning metabolic demand results in hypothyroidism. Currently, hypothyroidism possessing a major challenge to the medical fraternity in developing as well as a developed country. In the conventional system, there is no permanent solution for this disease. Hence, there is an urgent need for safe and effective alternative solutions, where Ayurveda can play a vital role to resolve the issue. For this purpose, proper understanding of pathogenesis is needed in terms of an Ayurveda ideology. This review is made with an effort to understand the disease from an Ayurvedic perspective. **Methods:** This study was carried out by literature search and a 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 was made critically and an effort is made to understand the complete pathogenesis of hypothyroidism in terms of *Dosha*, *Dushya*, *Agni*, and *Srotasa*. **Result:** On reviewing the clinical presentation of hypothyroidism from various sources it is found that hypothyroidism is an abnormality of *Jatharagni* and *Dhatwagni* involving *Kapha* and *Vata Dosha* and influencing *Rasavaha*, *Raktavaha*, *Medovaha*, and *Manovaha Srotasa*. Ultimately, these factors should be considered during the Ayurvedic management of hypothyroidism. **Conclusion:** *Galganda* may seem reasonable to assume the condition refers to Goiter which is abnormal swelling in the thyroid gland or some type of neck tumor, where thyroid functions may or may not be compromised. Hypothyroidism, however, affects many different physiological systems and has a wide range of symptoms. So, it is better not to restrict hypothyroidism only to *Galganda* as mentioned in the classics. The core of therapy is to increase Agni's quantity and quality. Based on our observations, we concluded that ayurveda medications may control hypothyroidism quite effectively depending on the symptoms, but cautious Ayurvedic drug selection and lifestyle management should be done. But extensive and intensive research for the validation of Ayurveda management of hypothyroidism is needed at the current time.

Keywords: Hypothyroidism, *Galaganda*, Ayurveda, Dravyaguna

Introduction:

The thyroid gland is an important endocrine gland that secretes thyroid hormones responsible to regulate the basic metabolic rate in the body. Deficiency of these hormones or resistance of body tissue to these hormones concerning metabolic demand results in hypothyroidism. Unhealthy dietary habits and lifestyle are the triggering factors of disease manifestation. Currently, hypothyroidism possessing a major challenge to the medical fraternity in developing as well as a developed country. It is prevalent among everyone from 10 adults in India, nearly 10.95 % in major cities of with significantly females number outweighing the male i.e. (15.86% females and 5.02% males)⁽¹⁾. In the conventional system there is no permanent solution for this disease. Hence, there is an urgent need for safe and effective alternative solutions, where Ayurveda can play a vital role to resolve the issue. For this purpose, proper understanding of pathogenesis is needed in terms of an Ayurveda ideology. This review is made with an effort to understand the disease from an Ayurvedic perspective to give safe and alternative management.

Material and Methods: This study aims to establish the best management strategy for hypothyroidism by defining the full etiology of the condition in terms of *Dosha*, *Dushya*, *Agni*, and *Srotasa*. In order to conduct an evidence-based study, the evidence supporting hypothyroidism in traditional ayurveda literature was gathered from a number of online medical research resources, including PubMed, Google Scholar, and other national research databases.

Etiology of Hypothyroidism

Hypothyroidism is classified into.⁽²⁾

1. Primary (thyroid failure): Due to inadequate secretion of T3 and T4 hormones. It accounts for 95% of hypothyroidism. most common cause of primary hypothyroidism is 1. Iodine deficiency 2. Autoimmune thyroid disease 3. Congenital 4. Drugs 5. Iatrogenic.
2. Secondary (due to pituitary TSH deficit)
3. Tertiary (due to deficiency of TRH)

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.

Involvement of *Tridosha* and *Dhatu*

<i>Lakshana</i> ^(3,4)	<i>Dhatu</i> ⁽⁵⁾	<i>Dosha</i>
Reduced appetite	<i>Kapha Vriddhi, Pitta Kshaya</i>	<i>Rasa</i>
Gaining Weight	<i>Kapha Vriddhi, Pitta Kshaya</i>	<i>Rasa, Mamsa, Meda</i>
Puffiness	<i>Kapha Vriddhi</i>	<i>Rasa</i>
Dry & coarse skin	<i>Vata Vriddhi</i>	<i>Rasa</i>
Hair loss	<i>Vata Vriddhi</i>	<i>Rasa, Asthi</i>
Constipation	<i>Vata Vriddhi</i>	<i>Purusha Mala</i>
Voice Hoarseness	<i>Vata Kapha Vriddhi</i>	
Decreased perspiration	<i>Pitta Kshaya</i>	<i>Meda</i>
Generalized Aches, Pain	<i>Vata Vriddhi</i>	<i>Rasa, Asthi</i>
Sluggishness	<i>Kapha Vriddhi</i>	<i>Meda</i>
Lethargy, Sleepiness	<i>Kapha Vriddhi</i>	<i>Rasa, Meda</i>
Anemia	<i>Kapha Vata Vriddhi</i>	<i>Rasa</i>
Menstrual disturbances	<i>Vata Vriddhi</i>	<i>Rasa, Artava</i>

Involvement of *Srotasa*^(6,7)

<i>Srotasa</i>	<i>Lakshana</i>
<i>Rasavaha</i>	Gaining weight, Decrease in appetite, Feeling heaviness, Lethargy, Widespread pains, Symptoms of premature ageing include hair loss, Intolerance to the cold, Puffiness, Dry skin, Anemia, Irregular menstruation, Infertility
<i>Raktavaha</i>	Slow heartbeat, Mental activity slowing, Fatigue and anaemia
<i>Mamsavaha</i>	Oedema, <i>Galaganda</i>
<i>Medovaha</i>	Fatigue, Drowsiness, Sluggishness, Hyperlipidemia, and Dyspnea with exercise.
<i>Asthivaha</i>	Hair loss, Osteoporosis and Osteoarthritis
<i>Majjavaha</i>	Osteoporosis
<i>Shukravaha</i>	Libido loss and Infertility
<i>Purishavaha</i>	Constipation
<i>Swedavaha</i>	Dry and coarse skin, No or little sweating
<i>Artavavaha</i>	Secondary amenorrhea, Infertility, and Loss of libido

Samprapti Ghataka

- *Dosha* – *Kapha Vriddhi, Vata Vriddhi, Pitta Dushti (Kshaya)*
- *Dushya* – *Rasa, Meda*
- *Agni* – *Jatharagni, Dhatvagni*
- *Ama* – *Jatharagnimandhya Janita, Dhatvagnimandhyajanita.*
- *Srotas* – *Rasavaha, Raktavaha, Medovaha* and *Manovaha Srotasa.*
- *Srotodushti prakara* – *Sanga, Vimargamana*

- *Udbhava sthana* – *Amashaya*

- *Rogamarga* – *Bahya, Madhya* and *Abhyantara*⁽⁸⁾

According to the aforementioned signs and symptoms, hypothyroidism is characterised by an abnormality of *Jatharagni* and *Dhatwagni* along with abnormality of *Kapha* and *Vata Dosha* as well as *Rasavaha, Raktavaha, Medovaha, Shukravaha* and *Manovaha Srotas*. The thyroid gland's primary role is to serve as a spark for the continuation of oxidative metabolism in most tissues. In Ayurveda parlance, this is attributed to the function of *Agni* (a system related to metabolism). Hormone replacement with medication is not an option for the Ayurvedic care of hypothyroidism.

However, one can interpret the pathogenesis of hypothyroidism in the context of Ayurveda, in which the role of Agni is foremost and through its management, wholesome normal activity of the thyroid gland may be achieved. By controlling the immune system and reducing inflammation, therapy should aim to tackle the issue at its source.

Srotoshodhana (cleansing of the macro and microchannels), *Agnideepana* (stimulation of the digestion and metabolism), *Pachana* (digestion) and *Vatanulomana* (proper regulation of excretory system) are the main principles of treatment. Several herbs can be very effective to manage hypothyroidism.

Sr. No	Name of Plant	Pharmacological properties	Pharmacological function
1	<i>Kanchanara</i>	<i>Rasa - Kashaya Ras, Guna - Ruksha, Laghu Virya - Sheeta, Vipaka - Katu, Karma - Kaphahara, Grahi, Gandamalahara</i>	<p>The drug of preference for Granthi Vikara and Galaganda is Kanchnara. External application of Kanchnara bark is done in Gandmala⁽⁹⁾. The fresh bark of Kanchanara is grinded with Tandulodaka and mixed with Shunthi and used internally⁽¹⁰⁾.</p> <p>A water-soluble fraction of total alcoholic extract of <i>Bauhinia variegata</i> Linn at a dose of 2 g/kg was fed to Neomercazole (150 mg/kg)-induced hypothyroidic rats (n = 12 in each group) for 20 days. The experiment resulted in enhanced thyroid function as evidenced by increased thyroidal weight (p < 0.001), I131 uptake and decreased serum cholesterol (p < 0.05 for both), and active thyroidal histology⁽¹¹⁾.</p> <p>The bark extract of <i>Bauhinia purpurea</i> Linn. at 2.5 mg/kg orally administered to female mice (n = 7 in each group) significantly increased serum T3 and T4 concentrations (p < 0.001 for both) after 20 days of treatment.⁽¹²⁾</p>
2.	<i>Shigru</i>	<i>Rasa- Katu, Tikta Guna - Ruksha, Laghu, Tikshna Virya - Ushna, Vipaka - Katu, Karma - Kaphavatahara, Agnidipaka, Rochana, Sangrahi, Shukrala, Shwayathu, Medahara, Apachihara</i>	<p><i>Shigru</i> seeds paste with <i>Nichula</i> is applied locally in the treatment of <i>Galaganda</i>.⁽¹³⁾</p> <p>The aqueous leaf extract of <i>Moringa oleifera</i> Lam. was evaluated for its ameliorative effect in the regulation of thyroidism in the rat model. Male albino rats of 120-150 g were treated orally with doses of 500mg/kg body weight (b.w.) and 250 mg/ kg b.w. of aqueous extract of <i>Moringa oleifera</i> Lam. leaf. The group which received the maximum test dose (500mg/kg b.w., 14 days) showed a maximum percentage increase in hormone concentration of T3 and T4 whereas a maximum percentage decrease in TSH levels was observed when compared to the other dose levels, which proves that the response was dose effective and the <i>Moringa oleifera</i> leaf extracts can be used in hypothyroidism condition to normalize hormone levels.⁽¹⁴⁾</p>
3.	<i>Varuna</i>	<i>Rasa- Tikta ras, Kashaya Guna - Ruksha, Laghu, Virya - Ushna, Vipaka - Katu, Karma - Kaphavatahara, Dipana, Pachana, Krimighna, Bhedana, Shothahara, Ashmarihara</i>	<p>Decoction of <i>Varuna</i> root is given with honey in the treatment of <i>Gandamala</i>.</p> <p><i>Varuna</i> also possesses an antitumor property which makes it beneficial in extra growths of the thyroid as well as in hypertrophy of the prostate.⁽¹⁵⁾</p>

4.	Guggulu	Rasa- Tikta, Katu Guna – Ruksha, Laghu, Tikshna, Vishada Virya – Ushna, Vipaka – K a t u , K a r m a – Kaphavatahara, Vrishya, Swarya, Rasayana, Dipana, Pachana, Balya, Medahara, Kledahara, Aamvata, Grahani, Granthi, Shotha, Gandamalahara.	Guggulu (the gum resin of <i>Commiphora Mukul</i>) is reported to raise the triiodothyronine (T3)/thyroxine (T4) ratio in female mice and reverse the effects of propylthiouracil in hypothyroid mice by stimulating thyroid function. ⁽¹⁶⁾ <i>Triphladvay Guggulu Gutika</i> is used in <i>Gandamala</i> whose main content is <i>Guggulu</i> . ⁽¹⁷⁾
5.	Apamarga	Rasa- Tikta, Katu Guna – Ruksha, Laghu, Tikshna, Virya – Ushna, Vipaka – K a t u , K a r m a – Kaphavatahara, Dipana, Pachana, Medahara, Saraka, R o c h a k a , M e d h y a , Vishaghna	<i>Achyranthes aspera</i> Linn. leaf extract administered in rats (n = 7) at a dose of 200 mg/kg for 7 days caused an increase of T3 and T4 (p < 0.001 for both). An increase in blood glucose in this group (p < 0.05) further supported the extract's thyroid-stimulating nature. ⁽¹⁸⁾
6.	Aaragvadha	Rasa- Madhura Guna – Mrudu, Guru, Snigdha Virya – Sheeta, Vipaka – M a d h u r a , K a r m a – Vatapittahara	The root bark of <i>Aaragvadha</i> is grinded with rice water and used for <i>Nasya</i> and <i>Lepa</i> in the treatment of <i>Gandamala</i> . ⁽¹⁹⁾ Rats were used to test whether or not aqueous and ethanolic extracts of the leaves of <i>Cassia fistula</i> Linn might prevent hypothyroidism from being brought on by the drug propylthiouracil (PTU). To assess the anti-hypothyroidism activity, serum T3, serum T4, TSH, cholesterol levels, and changes in body weight were employed. When compared to the control group, treatment with both <i>Cassia fistula</i> extracts at a dosage of 300 mg/kg significantly boosted serum T3, serum T4, and lowered TSH and cholesterol levels. ⁽²⁰⁾
7.	Nirgundi	Rasa- Tikta, Katu Guna – Ruksha, Laghu, Tikshna, Vishada Virya – Ushna, Vipaka – Katu, Karma – Vatakaphahara	The root of <i>Nirgundi</i> is grinded with water and used for <i>Nasya</i> in the treatment of <i>Gandamala</i> . ⁽²¹⁾ Taila, which is prepared by <i>Nirgundi</i> Svarasa and paste of <i>Langali</i> root, is used for <i>Nasya</i> in the treatment of <i>Gandamala</i> . ⁽²²⁾
8.	Brahmi	Rasa- Tikta, Kashaya Guna – Laghu Virya – Sheeta, Vipaka – Madhura, Karma – Kaphapittahara	<i>Brahmi</i> is a very well-known <i>Medhya</i> drug in Ayurveda classics. <i>Bacopa monnieri</i> Linn (Indian pennywort) extract has been observed to increase both T4 and T3 levels in male mice. ⁽²³⁾
9.	Ashwagandha	Rasa- Katu, Tikta, Madhura Guna – Snigdha, Laghu Virya – Ushna, Vipaka – Madhura, Karma – Vatakaphahara	<i>Ashwagandha</i> is an immunomodulator herb so it is useful in autoimmune thyroid conditions. According to research on animals, <i>shwagandha</i> can balance thyroid hormones. In a 20-day experiment, mice were fed <i>Ashwagandha</i> , and their T3 and T4 levels as well as lipid peroxidation were examined (anti-oxidant protection). The presence of significant elevations in blood T4 suggests that this herb has a stimulating effect on a slow thyroid ⁽²⁴⁾ . In a different research, mice (n = 8) received all three extracts (<i>B. purpura</i> , <i>C. mukul</i> , and <i>W. somnifera</i>) concurrently for 30 days at the aforementioned levels. The findings, which demonstrated a rise in T3 and T4 levels (p 0.01 and p 0.001, respectively), indicated that a combination of the three plant extracts would prove to be a successful therapy for hypothyroidism. ⁽²⁵⁾

Discussion:

Hypothyroidism is a major issue in the current era, many modern medicinal therapies and medicines are available for the treatment of this disease but these are not devoid of side effects and the reoccurrence rate is also high. It is very important to show an interest in traditional herbal remedies which are regarded as quite safe and cost-effective. On reviewing the clinical presentation of hypothyroidism from various sources it is found that hypothyroidism is an abnormality of *Jatharagni* and *Dhatwagni* involving *Kapha* and *Vata Dosha* and influencing *Rasavaha*, *Raktavaha*, *Medovaha*, and *Manovaha Srotasa*. Ultimately, these factors should be considered during the Ayurvedic management of hypothyroidism. The bulk of the herbs suggested for this ailment not only soothe numerous symptoms but also directly affect the hormone secretions involved in the disease's development and promote the thyroid gland's proper function. Even yet, further clinical studies on the aforementioned herbs are required to confirm their effectiveness in correcting thyroid dysfunction and give medical professionals more alternatives for treating the condition.

Conclusion:

Galaganda may seem reasonable to assume the condition refers to Goiter which is abnormal swelling in the thyroid gland or some type of neck tumor, where thyroid functions may or may not be compromised. Hypothyroidism, however, affects many different physiological systems and has a wide range of symptoms. Therefore, it is preferable not to limit hypothyroidism to *Galaganda* alone, as recommended in the classics. Hypothyroidism's symptomatology is conceptually analyzed, which enables us to classify it as a *Kapha Pradhana*. *Rasa* and *Medo Dushti* are mostly *Tridosha Vyadhi*. The course of therapy might be planned using *Dosha Pratyaneeka Chikitsa* rather than *Vyadhi Pratyaneeka Chikitsa*. The core of therapy is to increase *Agni's* quantity and quality. In light of this, dietary guidelines and a healthy lifestyle as prescribed in Ayurvedic scriptures, coupled with herbs with *Dipana*, *Pachana*, *Lekhana*, *Kaphashamaka*, *Vatanulomana* and *Srotoshodhana* characteristics, appear to be useful in treating this illness. Thus, a multi-factorial and holistic approach is required for the management of hypothyroidism i.e., diet, drugs and yogic exercises & Pranayama all in combination help in normalizing the thyroid functions.

Conflict of Interest: Nil

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