



Review Article

**EFFECTIVE MANAGEMENT OF HYPOTHYROIDISM BY USING AYURVEDIC INTERVENTIONS:
A CASE REPORT**

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ABSTRACT

Hypothyroidism is an endocrine disorder that mainly occurs due to insufficient thyroid gland stimulation or primary gland failure by the pituitary or hypothalamus gland. Symptoms of hypothyroidism include fatigue, gastric trouble, face puffiness with edematous eyelids, retarded nail growth, weight gain, hoarseness of voice, decreased libido, pallor, dry skin, dry hair, alopecia, constipation, abnormal menstrual cycle, muscle cramps, myalgia etc. A 30-year-old married Hindu, non-alcoholic, non-smoking male patient visited OPD of Shuddhi Ayurveda Clinic, Jeena Sikho Lifecare Pvt. Ltd. Noida on 18 November 2020 with known case of subclinical hypothyroidism. On the basis of clinical diagnosis and laboratory investigations, Ayurvedic medicines having action on thyroid gland and digestion improvement were prescribed for over a period of six months. After this Ayurvedic medicinal treatment for four months i.e. from November 2020 to February 2021, significant results were noted in terms of reduction in level of increased TSH. TSH level was significantly reduced from 181µIU/ml to 0.11µIU/ml within two months of Ayurvedic treatment. Then, there was a mild increase in the TSH level when patient was tested for TFT after four months i.e. on 21st of June 2021, investigated level of TSH was 5.59µIU/ml. Overall, a satisfactory result was observed in patient clinical conditions proving significant efficacy of Ayurvedic treatment.

INTRODUCTION

The very first endocrine gland to develop in humans was thyroid gland which is the most vascularized organ in the body located in the neck anteriorly between the C5 and T1 vertebrae and deep in the platysma, sternothyroid, and sternohyoid muscles. It is a bilobular soft reddish organ having H-shaped structure. The lobes, right and left are connected by isthmus. Thyroid weighs about 15–20g and usually heavier in males than females whereas it weighs about 1 in a newborn which increases 1gm per year until the age of 15^[1]. The gland is known for its hormones which are produced by the hypothalamus or pituitary gland which include tri-iodothyronine (T3) and tetra-iodothyronine (T4) where T3 is functionally

more active. These are formed within the follicular cells of the thyroid gland and are released into the systematic circulation in response to Thyroid Stimulating Hormone (TSH). The trace element iodine is required for the synthesis of thyroid hormone. Any abnormality in the thyroid gland and its morphology may lead to various thyroid disorders which are the most common endocrine disorders with the occurrence rate of 42 million of the total population and 11% in India^[2,3].

The primary reason of disease genesis in the modern times is drastic changes in the lifestyle and dietary habits such as sedentary lifestyle with unhealthy eating habits^[4]. Thyroid actively carries the process of metabolism but lack or resistance of body tissue to this hormone with respect to metabolic demand results in hypothyroidism^[5]. It is an endocrine disorder that mainly occurs due to insufficient thyroid gland stimulation or primary gland failure by the pituitary or hypothalamus gland. There can be various causes of hypothyroidism such as iodine deficiency, autoimmune, iatrogenic and transient thyroiditis^[6]. It is the most common disease found in every third

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individual in today's world. Hypothyroidism is mainly of three types i.e., primary, secondary and tertiary where primary hypothyroidism is the commonest type occurs due to abnormalities in thyroid gland^[7]. Secondary and tertiary hypothyroidism occurs due to malfunctioning of pituitary and hypothalamus gland^[8]. Symptoms of hypothyroidism include fatigue, gastric trouble, face puffiness with edematous eyelids, retarded nail growth, weight gain, hoarseness of voice, decreased libido, pallor, dry skin, dry hair, alopecia, constipation, abnormal menstrual cycle, muscle cramps, myalgia etc. Hypothyroidism can also lead to dyslipidemia, hypertension, cognitive impairment, infertility and neuromuscular dysfunction. As per WHO reports there are about 2 billion people are found to be iodine deficient worldwide^[9].

A type of hypothyroidism called subclinical hypothyroidism is the condition in which the patient is diagnosed with normal T3 and T4 level but raised TSH levels up to 10IU/dl with specific cardinal symptoms [10-13]. The terms "*Galaganda*" and "*Avatu granthi alapa shrota*" (enlarged thyroid gland) are mentioned in many ancient Ayurvedic texts like Charaka, Sushruta and Asthanga hrudaya which are related to disorders of thyroid gland. Although there are no direct references available in Ayurveda regarding hyper- or hypo production of the thyroid hormone, but as the name suggests it is the manifestation of swelling in or around the neck, so it can be considered as goiter and thyroidism. *Galaganda* is attributed to the hypo functioning of metabolic system i.e., *Agni*. There are five classifications of hypothyroidism which are entirely based on its causes i.e. *Vata*, *Pita*, *Kapha* or urinary tract infections (mostly in females) and finally the goiter (advanced stage of hypothyroidism induced by *Kapha*). Hypothyroidism mainly occurs due to vitiation in *Vata* and *Kapha doshas* and comes under *Anukta vikara* and is considered as *Vata-kafaj dushti-janya vhadhi* with indications like *Kapha doshas*, *Rasa dhatvangni* and *Rasa dhatu*^[14-19].

Galaganda was first described in *Atharva Veda* by the name *Apachi*. It is mentioned under 20 *Sleshma Vikaras* by Charaka. According to Sushruta in *Sareera Sthana*, the sixth layer of the skin named *Rohini* is served as the seat of *Galaganda*. As per *Nidaan Sthana*, it is present anteriorly to the neck as two encapsulated swellings either small or big present in hanging position whereas Acharya Charaka described the disease as a single swelling. Acharya Bhela mentioned that it is one of the diseases that is more commonly found in people of the Eastern part of the country and who consume high fish diet. According to *Harita Samhita*, contaminated water and infection are two primary causes of this disease. In addition, *Kashyapa Samhita* mentioned that people of cold, rainy, damp and densely covered areas with stagnant water are

more likely to have symptoms of this disease^[20]. Ayurvedic treatment of this disease is initiated by clearing of the blocked channels followed by an oral therapy and *Rasayana* (rejuvenative) therapy. The basic principle used in Ayurvedic line of treatment is of *Galaganda* "*Saamana Vishesh Siddhanta*" which indicates the meaning that the disease is aggravated by similar condition and alleviated by dissimilar conditions. For example, *Kapha* inhibiting drugs are used to decrease *Kapha*, *pitta* enhancing drugs are used to increase *Pitta* whereas *Meda* (fat) neutralizing drugs are used to lower down the *Meda* which ultimately helps in restoring the homeostasis along with metabolic activity which were disturbed by blockage of channels by *Kapha* ^[21].

Case Report

A 30-year-old married Hindu, non-alcoholic, non-smoking male patient visited OPD of Shuddhi Ayurveda Clinic, Jeena Sikho Lifecare Pvt. Ltd. Noida on 18 November 2020, with chief complaints of fatigue, throat irritation, temporal joint pain, loss of appetite, gastric trouble, nightfall, increased levels of TSH, abnormal LFT, irregular thyroid, body weakness and stiffening of joints. The patient was suffering from these symptoms from the past one and half year with no any family history of such disease. Patient came with the previous report for his thyroid profile (T3, T4, TSH) which was done on 1 March 2020. Reports showed high level of TSH i.e. 181 μ IU/mL. T3 and T4 was within normal range i.e. 21.85ng/dl and 2.05 μ g/dl. From this reports it was clear that he is suffering from subclinical hypothyroidism. The patient was on allopathic medication for the same disease but didn't get any relief.

Patient Information

Presenting Complaints

The chief complaints of the patient were fatigue, muscle pain, gastric trouble.

Medical, family and psychosocial history including genetic information

The patient represented no history of drug intake or any other kind of addiction. Patient had a previous disease history of typhoid, dengue, renal stone and hemorrhoids for which he took allopathic treatment and undergone surgeries. In the family, there was no history of any such or other kind of chronic disease.

Relevant past interventions and their outcomes

The patient had undergone through the surgical procedures named haemorrhoidectomy and percutaneous nephrolithotomy (PCNL) for the problem of hemorrhoid and renal stone respectively. Also, the patient consulted Shuddhi Ayurveda Clinic for the first time for the chief complaint of Hypothyroidism.

Clinical Findings**Physical and Systemic Examination**

The patient was systemically examined for his bowel (frequency and evacuation), appetite and digestion, gas, acidity, eyes, urine, sleep and mind. From the assessment it was observed that:

- Bowel was soft, yellowish and mixed with mucus but evacuated incompletely.
- Feeling of anorexia with episodes of tightness before the next meal.

Jeebha Pariksha (Tongue examination)

1 st Month	2 nd Month	3 rd Month	4 th Month	5 th Month
18/11/2020	15/01/2021	10/02/2021	11/03/2021	22/05/2021
Pinkish cracked lines appeared	The crack lines reduced	Slightly pinkish color appeared	Appears normal with no coating	Appears normal with no coating

Naadi Pariksha (Pulse Examination)

Naadi	1 st Month	2 nd Month	3 rd Month	4 th Month	5 th Month
	18/11/2020	15/01/2021	10/02/2021	11/03/2021	22/05/2021
Vata	Moderate (++)	Moderate (++)	Moderate(++)	Average (+)	Average (+)
Pita	High (+++)	Moderate (++)	Moderate(++)	Average (+)	Average (+)
Kapha	Moderate (++)	Moderate (++)	Average (+)	Average (+)	Average (+)

Indications: (+++) High force (*Bala*), (++) Moderate force (*Bala*), (+) Average force (*Bala*).

Dashvidh Pariksha

Prakriti (physical constitution):- *Vatakaphaj*

Vikruti (pathological condition):- *Vyadhimadhyambala*

Dosha (deranged regulatory functional factors of the body):- *Vata pitta dusti*

Dushya (deranged major structural components of the body):- *Rasa and Raktadusti*

Sthana (site of localization):- *Amashyagata*

Agni (digestive/metabolic factors):- *Mandagani*

Srotas (structural or functional channels):- *Annavahashrotas and Raktavahashrotas*

Avastha (stage of disease):- *Jirnaavastha*

Rogamarga (pathway of disease manifestation):- *Abhyantarmarga*

Sadhyaasadyata (prognosis):- *Shadhyaaswastha*

Sara (excellence of tissues):- *Raktasara*

Samhanana (body compactness):- *Madhyamsamhanna*

Pramana (measurements of body parts):- *Madhyampraman*

Satmya (homologation):- *Alpasatmya*

Sattva (mental constitution):- *Avara sattva*

Aharashakti (capacity to ingest food and capacity to digest and assimilate the food):- *Madhyamshakti*

Vyayamashakti (capacity to exercise):- *Avara* (poor)

Vaya (age): *Madhyamyuvanavastha*

Laboratory Assessment

Patient was investigated for assessing the functioning of thyroid gland by Thyroid function test previously in March 2020 where he was diagnosed with hypothyroidism. After initiating Ayurvedic treatment further thyroid function was again repeated in February 2021 and June 2021 where TSH was found to be reduced. Laboratory reports are attached in figure no. 1 and results are also compiled in table no. 1.

Table 1: Thyroid Function Test reports for the case report

Test	01 March 2020	15 February 2021	21 June 2021
Serum Triiodothyronine T3	21.85 ng/dl	1.44 ng/dl	1.10 ng/mL
Serum Thyroxine T4	2.05 µg/dl	8.3 µg/dl	9.08 ng/dl
Thyroid Stimulating Hormone (TSH)	181 µIU/mL	0.11 µIU/mL	5.59 µIU/mL

Diet

The patient was recommended to avoid non vegetarian food, fast food and milk products. Patient was strictly advised to take seasonal fruits of three to four types before each meal.

Ayurvedic Interventions

On the basis of clinical diagnosis and laboratory investigations, Ayurvedic medicines having action on thyroid gland and digestion improvement were prescribed. Patient was administered with Ayurvedic medicines described in table no. 2 for the duration of six month of treatment.

Table 2: Ayurvedic medicines prescribed to the patient in this case

S.No.	Name of Medicines	Form	Dosage	Route	Adjuvant	Mode of Action
1.	<i>Divya Thyri</i>	Capsule	Twice a day	Oral	Lukewarm water	Stimulates normal functioning of pituitary gland, <i>Kaphaghna, Medhnashak</i>
2.	<i>Divya Liv-ds</i>	Capsule	Twice a day	Oral	Lukewarm water	Digestive stimulant, appetizer, liver modulator, <i>Aampachan, Pachakghnivardhana</i>
3.	Liv-Gain 60	Tablet	Twice a day	Oral	Lukewarm water	<i>Aampachan</i> (helps to keep digestive system healthy)
4.	<i>Maha Amritam</i>	Powder	Once in a day (2.5 gm)	Oral	Lukewarm water	<i>Anulomana, Vatshoolnashaka, Deepanpachana</i> , treat digestive disorder, <i>Aamnashak</i>
5.	<i>Divyagranthi Harvati</i>	Tablet	Twice a day	Oral	Lukewarm water	Helps to reduce or breakdown deep seated, <i>Kapha dosha</i> & supports digestive fire, <i>Kaphaghna, Shothar, Kleda shamak</i> .
6.	<i>Divyaasthiposhakvati</i>	Tablet	Twice a day	Oral	Lukewarm water	Anti-inflammatory, antioxidant, anti-arthritis, potent natural calcium supplement, beneficial for bones & joints
7.	<i>Dhatu Poshak</i>	Capsule	Twice a day	Oral	Lukewarm water	<i>Balya, Rasayana</i> (rejuvenator), <i>Dhatuposhak</i>
8	<i>Amla pittahar churan 60gm</i>	Powder	Once a day before sleep	Oral	Lukewarm water	<i>Deepan pachan, Pitta Shamak, Mradu rechan</i>
9	<i>Amlapittanashak cap</i>	Capsule	Twice a day	Oral	Lukewarm water	<i>Deepan pachan, Pitta shamak, Mradu rechan</i>
10	Shuddhi Karan tablet	Tablet	Once in week	Oral	Normal water	<i>Pitta rechak, Shodhan</i>

Follow-up and Outcomes

First follow up of patient was taken after 2 months of treatment, then after one month for the time period of total four months. Recurring of symptoms in the patient was gradually decreased after every month of treatment. Patient was appeared normally clinically

after the six-month duration of herbal treatment with no any significant clinical symptom.

OBSERVATIONS AND RESULTS

The patient was diagnosed with subclinical hypothyroidism. As per his previous reports, the T3

and T4 level of the patient was 21.85ng/dl and 2.05µg/dl respectively which was within normal biological reference range whereas TSH level was found to be very high i.e. 181µIU/ml in march 2020. The patient was prescribed with the Ayurvedic medicines as given in table no.1. After this Ayurvedic medicinal treatment for four months i.e., from November 2020 to February 2021, significant results were noted in terms of reduction in level of increased

TSH. TSH level was significantly reduced from 181µIU/ml to 0.11µIU/ml within two months of Ayurvedic treatment. Then, there was a mild increase in the TSH level when patient was tested for TFT after four months i.e. on 21st of June 2021, investigated level of TSH was 5.59µIU/ml. Overall, a satisfactory result was observed in patient clinical conditions. Graphical representation of the result is shown in graph no. 1.

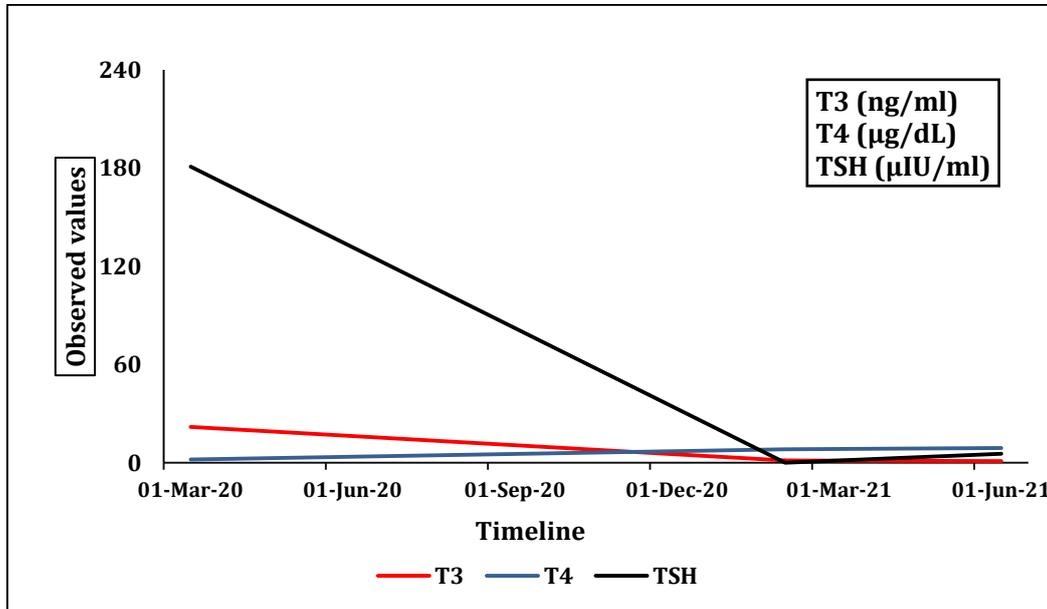


Figure 2: Graph showing Ayurvedic treatment result in reducing TSH

CONCLUSION

Ayurveda has laid its own principles for the cause, diagnosis, prevention and treatment of diseases. From the above study it can be clearly concluded that Ayurvedic medicines are effective in the management of subclinical hypothyroidism without apparent evidence of any adverse effect or any severe complication in the patient. The condition of hypothyroidism can be very well managed with use and proper selection of Ayurvedic medicines. Also, medicines are well tolerated by the patient without any side effect. So from this case study it was concluded that by adopting traditional Ayurvedic medicines and treatment one can not only decrease the level of TSH in hypothyroidism, but also stimulate the normal functioning of thyroid gland.

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