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AYURVEDIC MANAGEMENT OF HYPOTHYROIDISM: A CASE STUDY ON AYURVEDIC INTERVENTION

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ABSTRACT

The most common endocrine condition in the general population is hypothyroidism. It is distinguished by an abnormally low level of thyroid hormones. During infancy or childhood, this disorder impacts both physical and mental development and results in a decrease in basal metabolic rate. In the developed world, its prevalence is 4.6% and its prevalent in india approximately 11%. The use of synthetic thyroxine medications (levothyroxine) or hormone replacement therapy are examples of modern management techniques that results in a patient being permanently dependent on the medicine. Therefore, a better approach to treatment is required in the modern era, one that not only aids in disease management but also prevents reliance. A Hindu, married, 33-year-old Male patient visited the outpatient department of the institute, Patanjali Ayurved Hospital, K/C/O Hypothyroidism with complaint of Sudden weight gain, Hair fall, Stress and Constipation. After administration of Ayurvedic medications, lifestyle modifications much better results were seen in just 1 month.

KEYWORDS: Hypothyroidism, Levothyroxine, *Ayurveda*, *Agni*.

INTRODUCTION

In India, thyroid disorders are the most prevalent endocrine diseases. A progressive condition of the thyroid gland caused by inadequate thyroid hormone is called hypothyroidism. It is distinguished by an extensive clinical spectrum that includes a condition with normal amounts of thyroxin and triiodothyronine and slightly higher levels of serum thyrotropin, as well as an incidence of myxoedema, end organ symptoms, and multisystem failure.[1] The human endocrine system, which controls growth and development, cellular metabolism, basal metabolic rate, and oxygen consumption, includes the thyroid as a key component. Thyroxine (T4) and triiodothyronine (T3), which are essential for healthy growth and development and are principally in charge of establishing the basal metabolic rate, are secreted by the thyroid gland. The thyroid hormones function at the cellular level and are carried by the blood. Thyroid hormones raise the BMR by promoting the development of the neurological system, stimulating protein synthesis, and increasing the rate of cell respiration in tissues through gene activation.

An estimated 42 million Indians are thought to be affected by thyroid disorders, based on recent projections from multiple researches. It is estimated that between 1% and 2% of adults have thyroid issues. One important factor in the pathogenesis of hypothyroidism is autoimmunity. One autoimmune condition or another is found in every five patients. Complications from hypothyroidism include dyslipidemia, a significant risk factor for a number of life-threatening conditions.[2] When hypothyroidism reaches its worst, it can cause potentially fatal conditions. Anxiety, anxiousness, and despair are just a few of the negative consequences of the hypothyroidism medication. Therefore, it is imperative to find a safe and efficient Ayurvedic treatment for hypothyroidism.

CASE HISTORY

A Hindu, married, 33-year-old Male patient visited the outpatient department of the institute, Patanjali Ayurved Hospital, with complaint of Sudden weight gain, Hair fall, Stress and Constipation. He was a known case of Hypothyroidism and was taking allopathic medicine (Levothyroxine 125 mcg) for 10 months but not having any relief in above symptoms or thyroid profile. His diet pattern was Vegetarian and had no family history of hypothyroidism.

Complaints

Patient complaint of weight gain, difficulty in remembering things of 6 kg in past 4 months. Also, he had complaints of hair-fall, mood swings, stress, fatigue and drowsiness.

Clinical Findings

Clinical findings reveal that he had disturbed TSH levels.

Last finding reveals reduced levels of Free T3 & T4 i.e., 0.28 ng/ml and 0.91 ug/dl and increased levels of TSH (>100uIU/ml).

All other clinical findings were also noted.

B.P: 136/89 mm of Hg

Pulse Rate: 103/min

R/R: 20/min

Height: 178 cm

Weight: 83 kg

Systemic Examination.: Systemic examination reveals no abnormality.

Diagnosis and Assessment

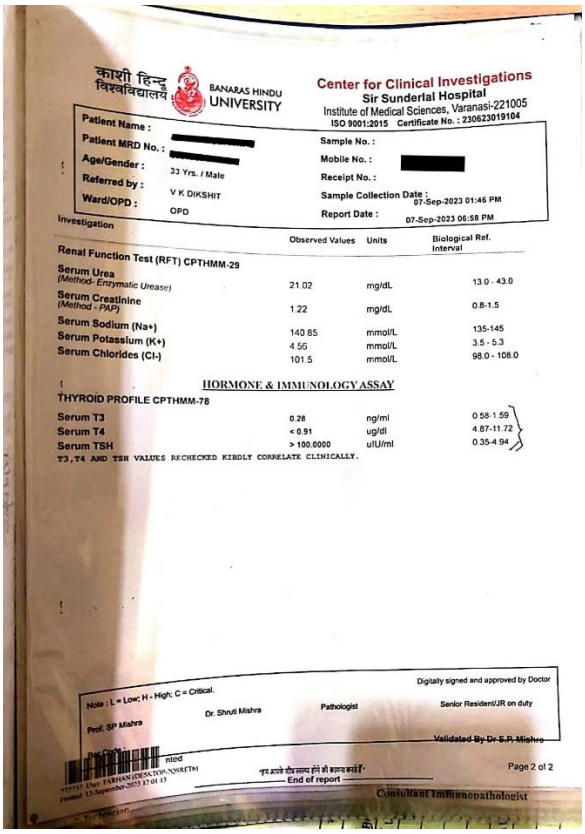
The patient was diagnosed as Hypothyroidism on the basis of clinical signs and symptoms as well as laboratory finding. The patient visited *Kayachikitsa* OPD of Patanjali Ayurved Hospital on 7 September 2023. He was administered with oral medications for a duration of 1 month. The complete timeline of treatment is presented in **Table no. 1.**

Table no. 1: showing oral medications administered.

Date	Name of drugs	Dose	Route	Time of administration	Duration	Anupana
07/09/2023 to 6/10/2023	*Kanchnar Ghanvati*	2-2 tablets	Oral	After meal	1 Month	lukewarm water
	Chitrakadi Vati	2-2 tablets	Oral	After meal	1 Month	lukewarm water
	Polyherbal formulation (Thyrogrit tablets)	2-2 tablets	Oral	Before meal	1 Month	Dhaniya water
	Brahmi Vati	2-2 tablets	Oral	Before meal	1 Month	lukewarm water
	Haritaki Churna	1 teaspoon	Oral	Bedtime	1 Month	lukewarm water

RESULT

The blood investigation before, midline and after reports are shown in **Figure 1, 2, 3.**



काशी हिन्दू विश्वविद्यालय BANARAS HINDU UNIVERSITY

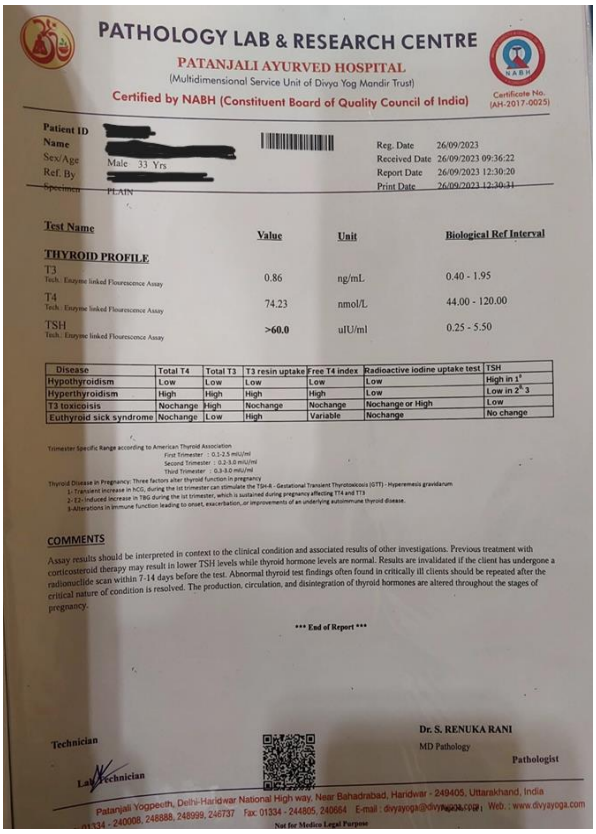
Center for Clinical Investigations
Sir Sunderlal Hospital
Institute of Medical Sciences, Varanasi-221005
ISO 9001:2015 Certificate No. : 230623019104

Patient Name :
Patient MRD No. :
Age/Gender : 33 Yrs. / Male
Referred by : V K DIKSHIT
Ward/OPD : OPD
Sample No. :
Mobile No. :
Receipt No. :
Sample Collection Date : 07-Sep-2023 01:46 PM
Report Date : 07-Sep-2023 06:58 PM

Investigation	Observed Values	Units	Biological Ref. Interval
Renal Function Test (RFT) CPTHMM-29			
Serum Urea (Method- Enzymatic Urease)	21.02	mg/dL	13.0 - 43.0
Serum Creatinine (Method - PAP)	1.22	mg/dL	0.8-1.5
Serum Sodium (Na+)	140.85	mmol/L	135-145
Serum Potassium (K+)	4.56	mmol/L	3.5 - 5.3
Serum Chlorides (Cl-)	101.5	mmol/L	98.0 - 108.0
HORMONE & IMMUNOLOGY ASSAY			
THYROID PROFILE CPTHMM-78			
Serum T3	0.28	ng/ml	0.58-1.59
Serum T4	< 0.91	ug/dl	4.87-11.72
Serum TSH	> 100.0000	uIU/ml	0.35-4.94

T3,T4 AND TSH VALUES RECHECKED KINDLY CORRELATE CLINICALLY.

Note : L = Low; H - High; C = Critical.
Prof. SP Mishra
Dr. Shruti Mishra — Pathologist
Digitally signed and approved by Doctor
Senior Resident/JR on duty
Validated By Dr S.P. Mishra
End of report
Consultant Immunopathologist
Page 2 of 2



PATHOLOGY LAB & RESEARCH CENTRE
PATANJALI AYURVED HOSPITAL
(Multidimensional Service Unit of Divya Yog Mandir Trust)
Certified by NABH (Constituent Board of Quality Council of India)
Certificate No. (AH-2017-0025)

Patient ID
Name
Sex/Age Male 33 Yrs
Ref. By
Specimen PLAIN
Reg. Date 26/09/2023
Received Date 26/09/2023 09:36:22
Report Date 26/09/2023 12:30:20
Print Date 26/09/2023 12:30:31

Test Name	Value	Unit	Biological Ref Interval
THYROID PROFILE			
T3 Tech.: Enzyme linked Flourescence Assay	0.86	ng/mL	0.40 - 1.95
T4 Tech.: Enzyme linked Flourescence Assay	74.23	nmol/L	44.00 - 120.00
TSH Tech.: Enzyme linked Flourescence Assay	>60.0	uIU/ml	0.25 - 5.50

Disease	Total T4	Total T3	T3 resin uptake	Free T4 index	Radioactive iodine uptake test	TSH
Hypothyroidism	Low	Low	Low	Low	Low	High in 1st
Hyperthyroidism	High	High	High	High	Low	Low in 2nd & 3
T3 toxicosis	Nochange	High	Nochange	Nochange	Nochange or High	Low
Euthyroid sick syndrome	Nochange	Low	High	Variable	Nochange	No change

Trimester Specific Range according to American Thyroid Association
First Trimester : 0.1-2.5 mIU/ml
Second Trimester : 0.2-3.0 mIU/ml
Third Trimester : 0.3-3.0 mIU/ml

Thyroid Disease in Pregnancy: Three factors alter thyroid function in pregnancy
1- Transient increase in hCG, during the 1st trimester can stimulate the TSH-R - Gestational Transient Thyrotoxicosis (GTT) - Hyperemesis gravidarum
2- E2- Induced increase in TBG during the 1st trimester, which is sustained during pregnancy affecting TT4 and TT3
3-Alterations in immune function leading to onset, exacerbation, or improvements of an underlying autoimmune thyroid disease.

COMMENTS

Assay results should be interpreted in context to the clinical condition and associated results of other investigations. Previous treatment with corticosteroid therapy may result in lower TSH levels while thyroid hormone levels are normal. Results are invalidated if the client has undergone a radionuclide scan within 7-14 days before the test. Abnormal thyroid test findings often found in critically ill clients should be repeated after the critical nature of condition is resolved. The production, circulation, and disintegration of thyroid hormones are altered throughout the stages of pregnancy.

*** End of Report ***

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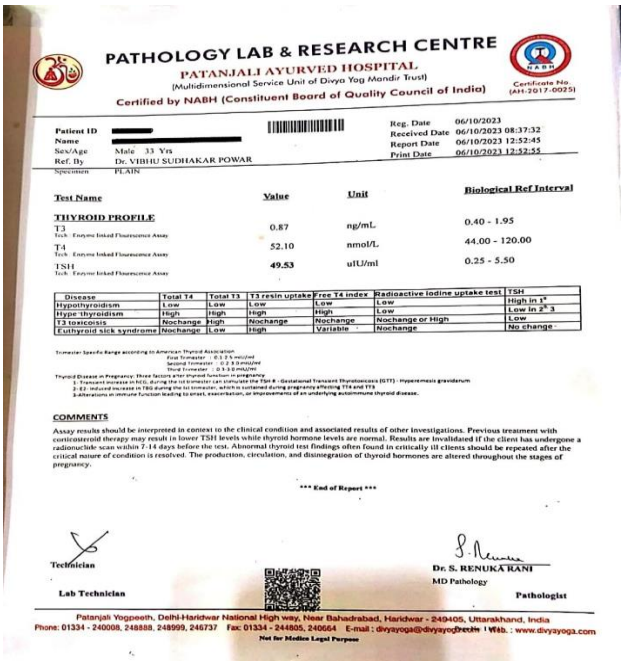
Figure 1 and 2: Showing before and mid result showing progressive improvement in serum TSH levels.



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Test Name	Value	Unit	Biological Ref Interval
THYROID PROFILE			
T3 Tech.: Enzyme linked Flourescence Assay	0.87	ng/mL	0.40 - 1.95
T4 Tech.: Enzyme linked Flourescence Assay	52.10	nmol/L	44.00 - 120.00
TSH Tech.: Enzyme linked Flourescence Assay	49.53	uIU/ml	0.25 - 5.50

Disease	Total T4	Total T3	T3 resin uptake	Free T4 index	Radioactive iodine uptake test	TSH
Hypothyroidism	Low	Low	Low	Low	Low	High in 1st
Hyperthyroidism	High	High	High	High	Low	Low in 2nd & 3
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Figure 3 showing after result showing marked improvement in serum TSH levels.

DISCUSSION

Most hypothyroidism cases have no known cause. An immunological response is believed to be the cause of hypothyroidism. Cells of the immune system in autoimmune diseases do not identify the cell as "self" and launch an attack on it. This immune system self-attack causes inflammation, and inflammation affects every aspect of thyroid physiology and metabolism. It is possible for pro-inflammatory cytokines to inhibit type 2 5'-deiodinase activity, which is necessary for the transformation of T4 into T3. Because inflammation increases cortisol levels, TSH and thyroid hormone synthesis are reduced. Pro-inflammatory cytokines have the ability to suppress the activity of the type 2 5'-deiodinase enzyme, which is necessary for T4 to T3 conversion. Increased cortisol levels brought on by inflammation result in decreased thyroid hormone synthesis and a drop in TSH. Additionally, cortisol enhances the conversion of T4 to reverse T3 and inhibits the conversion of T4 to active T3. The majority of tissues' metabolic processes are triggered by thyroid hormones, which raises the basal metabolic rate. *Agni* and thyroid hormone activity are comparable. *Agnimandya* is useful for comparing the cause of disease, which is a slowed metabolism. *Kapha* predominance-associated *Vata-Pitta* vitiation and *Margavaranajanya* [hindrance of function] leading to stimulation of *Vata* are the main etiological reasons that vitiate *Tridosha* in hypothyroidism.[3] When the digestive system (*Jatharagni*) is disturbed due to this *Tridosha* vitiation, the metabolic system (*Dhatvagni*) malfunctions and *Ama* manifests. This *Ama* causes the body's channels (*Srotorodha*) to become blocked, which damages the channels' contents and vitiates the *Srotasa* and *Dhatu* that these *Srotas* supply.[4]

Signs and Symptoms	***Dosha* Involved**	***Srotas* Involved**
Fatigue and drowsiness	*Vata*	*Rasavaha*
Weight gain	*Kapha*	*Rasavaha*
Difficulty in remembering things	*Vata*	*Manovaha*
Hair-fall	*Vata*	*Asthivaha*
Mood swings	*Vata*	*Manovaha*
Stress	*Vata*	*Manovaha*
Constipation	*Vata*	*Purishvaha*

In cases of overt hypothyroidism, the serum triglycerides remain high and the high density lipo-protein level remain low. These facts support the abnormality of *Medovaha Srotas* in the pathogenesis of hypothyroidism. *Ayurveda* states that *Pitta* control's thyroid function. *Pitta* function is obstructed by aggravated *Kapha* and *Medha Dhatu* in hypothyroidism or hyperthyroidism, which may result in either condition. By lowering Medha *Dhatu* and

harmonizing *Kapha*, *Kanchnar Guggulu* functions.[5] This helps the thyroid operate correctly by removing the blockage caused by its *Lekhana* (scrapping) character.

Haritaki being *Doshanulomana* helps in the attenuation of *Doshas*.

Moreover, *Haritaki* being *Deepana Pachana* collectively pacify the accumulated *Aam*. *Chitrakadi vati* was chosen for *Deepana Pachana* because it enhances *Agni*. The patient's hunger and sensation of lightness in the body improved, indicating that *Ama Pachana* had reached *Jatharagni*. *Brahmi* is traditionally used for cognitive enhancement and stress reduction and there are some studies that show that *Brahmi* may benefit thyroid health indirectly and help in increasing thyroid hormones naturally.

As an adaptogen, *Brahmi* helps your body manage stress, which is important because long-term stress can result in thyroid imbalance. By reducing stress, *Brahmi* may help regulate cortisol levels and lessen its negative effects on thyroid function, helping the gland produce hormones optimally. Polyherbal formulation Thyrogrit tablets contains *Dhaniya*, *Kachnar Chhal*, *Singhada*, *Punarnava*, *Trikatu*, *Shuddh Guggulu*. The seeds of the coriander sativum plant contain a wide range of phytochemical components, such as lignans and phenolic acids. Interestingly, these substances have drawn attention because of their potential anti-thyroid peroxidase (anti-TPO) properties. Ayurveda also states that Pitta is stimulated by the *Usna guna* and *Katu rasa* of *Trikatu*. *Agni*, *Vayu*, and *Akash Mahabhut*, which are in charge of *Kapha Saman*, predominate in it. It stimulates *Agni* and possesses *Deepaniya* and *Pachaniya* properties. Additionally, *Trikatu's Tikshna* property guarantees tissue penetration, demonstrating its effect in *Mandagni* at the *Dhatwagni* and *Bhutagni* levels.[6] *Trikatu churna* thus has encouraging effects in hypothyroidism with hypometabolism by correcting the tissue hypometabolism and, consequently, by normalizing the TSH through a feedback mechanism. *Guggul* helps in enhancing the function of the thyroid gland which further helps in increasing the production of thyroid hormones through the enzymatic approach. Water chestnuts (*Singhada*) are rich in iodine, which is required for the proper functioning of the thyroid gland. *Dhaniya* water is *Sheeta virya* which helped in reducing the *pitta* and excessive heat, and because of its diuretic and detoxifying supports there was removal of *ama* and excessive *kapha*. It also supported *Ras dhatu shuddhi*.

CONCLUSION

One rapidly developing lifestyle disorder that causes metabolic problems in the body is hypothyroidism. With no apparent negative effects, ayurvedic intervention provides a comprehensive approach to treating medical disorders, including hypothyroidism. One can increase the thyroid gland's natural activity and lower TSH levels in hypothyroidism by using *Ayurvedic* medications and lifestyle modifications. In essence, hypothyroidism is a *Vata* kapha *samsarga* condition that arises from the interaction of *Agni*, *Dhatu*, and *Dosha*. When treating hypothyroidism, all pathogenic factors need to be treated, with an emphasis on *Doshastrength*, body, and mind. Therefore, leading a rigorous lifestyle and following a nutritious diet may serve as an adjuvant to lessen negative effects and work in concert with pharmaceuticals to cure the illness.

Conflict of Interest: None.

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