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CASE STUDY

Rebalancing the Thyroid: A Case Study on Ayurvedic Management of Hypothyroidism

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ABSTRACT
Hypothyroidism can be considered as the most prevalent endocrine disorders faced by people in today's era; it mainly affects the female population. It can occur due to various abnormalities which lead to insufficient synthesis of thyroid hormones. In Ayurveda, this disease is considered as Anukta vyadhi (unstated disease), but based on the clinical presentations and according to the logic (Yukti) of the physician it can be categorized under different diagnoses. The symptoms might be correlated with Shotha (swelling), the main cause of shotha is vikrut rasa dhatu thus, it should be managed by Agnisamvardhana (balancing metabolism). This case study presents the clinical management of a 45-year-old female patient with 2 years history of hypothyroidism. The patient exhibited the classical symptoms of hypothyroidism and elevated TSH levels and was treated successfully with Shamana Aushadhi like Chitrakadi Vati, Kanchnara Guggulu, Saraswatarishta, Shodhana-Nasya & Pathya Ahara-vihara and Yoga. The ayurvedic intervention gradually subsided the symptoms and the TSH profile was repeated after 2 months which showed a significant decrease in the TSH level from 9.12 to 2.78. The case highlights that the integrative approaches such as Ayurveda and Yoga which was incorporated to reduce stress, stimulate thyroid function and improve metabolic activity can offer significant benefits. The aim is not just symptomatic relief but also for restoring the balance and quality of life.
KEYWORDS: *Hypothyroidism, Nasya, Pathya-Apathya, Shamana chikitsa.*

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INTRODUCTION

The Thyroid gland is located at the base of the neck below the Adam's apple, it helps to control the body's metabolism by producing thyroid hormones, including triiodothyronine (T3) and thyroxine (T4). The production of thyroid hormones is regulated by the brain, in the hypothalamus and pituitary. The thyroid hormones enter the blood and bind to a protein known as thyroxine-binding globulin (TBG) which assist it in carrying or transporting, them through the body [1]. These hormones are essential for maintaining metabolism, growth, development, as well as gut motility and can affect nearly every cell present in the body [2]. Hypothyroidism is a disease in which the thyroid gland cannot produce enough hormones over time, and the body's metabolism slows down. The reasons might be the improper functioning of thyroid itself (known as primary hypothyroidism) or unavailability or lack of thyroid stimulating hormone (TSH) from the pituitary gland. According to an epidemiological study conducted in India, hypothyroidism affected approximately one out of 10 adults in the study population, which indicates its high prevalence [3]. This condition leads to a general slowdown in metabolic processes. In *Ayurvedic* classics, hypothyroidism is not mentioned as a specific disease. But on the basis of its clinical manifestations, it can be correlated with different diseases or specific symptoms of some known diseases. It can be correlated with *Shotha*, *Galaganda*, [4] the symptoms of these exhibit some similarities, suggesting a potential overlap in clinical presentation. According to *Acharya Charaka*, understanding the possible pathogenesis of the disease in terms of involved factors like *Dosha, Dushya* etc [5], holds more importance rather than naming every disease. Comparing the symptoms of hypothyroidism, the pathogenesis indicates that it is

caused due to dysfunction of the *Agni*. Hypo functioning of *Jatharagni* is caused due to *Agnimandyakara Hetu Sevana* which further causes impairment of *Dhatvagni*, which affects the *Dhatus* causing respective *Dhatu Vriddhi* or *Dhatu Kshaya.*

CASE PRESENTATION

A 45-year-old, female with c/o fatigue, body ache, weight gain, constipation, anorexia and sleep disturbances attended the OPD. The patient is known hypothyroid and was on Tab. Thyronorm 50mcg for 2 years intermittently. At the end of January 2024, although her thyroid function tests indicated an increase in TSH level, she stopped taking her medications and as a result, her clinical condition deteriorated significantly. The patient was interested in pursuing Ayurvedic treatment.

CHIEF COMPLAINTS - (Table No. 1)

GENERAL EXAMINATION

B.P – 130/90 mm of Hg
Pulse – 78/min
Temperature – 98.4^0 F
Weight – 69 kgs
Height – 5.2 feet

HISTORY OF PAST ILLNESS - Hypothyroidism taking allopathy medicine Thyronorm 50mcg for 2 years.

FAMILY HISTORY - No significant family history.

PERSONAL HISTORY

Diet – Mixed
Appetite – Reduced
Sleep- Disturbed

MENSTRUAL HISTORY

Age of menarche – 14 years
32 days cycle / 3-4 days bleeding, no foul smell, clots absent.

ASTHAVIDHA PARIKSHA[6]

- *Nadi* (Pulse) – *Kapha – Vataja*
- *Mutra* (Urine) – *Samyaka*
- *Mala* (Stool) – *Irregular bowel movements*
- *Jivha* (Tongue) – *Sama* (Coated)
- *Shabda* (Voice) – *Gambhir*
- *Sparsha* (Touch) – *Samashitoshna*
- *Drika* (Eyes) – *Samanya*
- *Aakriti* (Built) – *Madhyama*

LABORATORY FINDINGS - THYROID PROFILE (06-03-2024)

T3 - 92 ng/dL
T4 - 9.35 µg/dL
TSH – 9.12 µlU/mL

TREATMENT

Nidana Parivarjana - It is an essential first line of *chikitsa* (treatment) in *ayurveda*, that emphasizes on avoiding the causative factors (*Nidana*) contributing to diseases. In case of hypothyroidism, the *Ahara* and *vihara* causing *Kapha Medovriddhi* should be avoided.

SHAMANA CHIKITSA – 1st 7 Days- (Table No. 2)

After 7 Days for 14 days- (Table No. 3)

The patient came for a follow up on 21st day of medication found a significant relief in the symptoms. The medications were further continued for a period of 1 month. (Table No. 4)

SHODHANA CHIKITSA

NASYA - N*asya* is beneficial in *urdhvajatrugata vikara* [11] (diseases above the neck). Nose is considered as the *dwara* (door) of head; thus, it is the most suitable route for the administration of drug [12].

The procedure was performed - (Table No. 5)

Purva karma- *Snehana* (oleation therapy) was given externally over the head, face, neck region with *Til Taila* for a period of 5-10 minutes followed by *Swedana* (steam) over the head, face, neck region.

Pradhana karma- *Siddha taila* was administered by raising the tip of nose, the nose was then gently massaged.

***PATHYA-APATHYA* (Do's & Don'ts)–**

Pathya-

***Ahara* (Food regimens)-** *Sada Pathyahara* [13] is mentioned by *Acharya Charaka* for all diseases such as *Rakta sali* (cereals rich in selenium), *Saindhava lavana* (rich in iodine), *Rohita matsya* (fish rich in iodine and selenium). Selenium is crucial for thyroid function. [14]

***Vihara* (Life style)-** *Yoga-Suryanamaskara*, *Anuloma Viloma pranayama* was recommended to the patient.

Apathya-

***Ahara* (Food regimens)**

Use of *Ahara Dravyas* like *Masha* (black gram), *Yavaka* (barley), *Godhuma* (wheat), *Dadhi* (curd), *Anupa Mamsa* (animals staying in marshy land), *Nava anna* (newly harvested grains), *Nava madya* etc. should not be done as these are the factors responsible for the disease. Certain foods, such as those in the Cruciferae family (broccoli, cauliflower, cabbage, etc.), soy beans, gluten in bread, rice, etc., and diets that are overly fatty and sugary should be avoided.

***Vihara (*Life style)**

Viharas such as *Diva Swapna (day sleeping), Avyayama (no exercise), Atinidra (excessive sleeping)* and *Mansika Nidana* like *Alasya (laziness)*, *Atichinta (overthinking)* also causes the vitiation of *dosha*, hence should be avoided.

OBSERVATIONS AND RESULT (Table No.6)

She started feeling better after 21 days of initial treatment then the treatment was continued for a period of almost 1 month, there after the symptoms were gradually reduced. profile and T3,T4.TSH after each month of treatment.

DISCUSSION

The *Ayurvedic* perspective on hypothyroidism, though not explicitly categorized in classical texts, draws attention upon the principles of *Agni*. The first and foremost causative factor for hypothyroidism is anything that hampers the *Agni* or gut health, as the thyroid gland is responsible for the metabolism. It can be *Jathragni* (at the level of the gut) or *dhatvagni* (at the level of tissues). Food plays an important role in the manifestation of any disease, thus, according to *ayurvedic* concept, *Nidana Parivarjana* is the first line of treatment. The other reasons can be stress, anxiety which is common in today's lifestyle, it causes the constant stimulation of the neuroendocrine system, which further impacts the *Agni*. The circadian rhythm also plays an important role as it can affect the doshas in the body. Along with medications, regular yogic practices relieve and reduces the symptom of hypothyroidism. It stimulates the blood flow to the thyroid region by incorporating breathing and relaxation techniques that are effective in stress relaxation**.** *Yoga* provides significant benefits by reducing stress, enhancing metabolism, and might stimulate thyroid function through targeted poses. Additionally, it promotes mindfulness and emotional balance, helping to alleviate the fatigue and weight gain commonly associated with the condition [9].

MODE OF ACTION OF DRUGS

***Chitrakadi Vati* -** The formulation primarily consists of ingredients characterized by *katu* (pungent) and *tikta* (bitter) *rasa*, *ushna virya* (hot potency), *katu vipaka* and *deepana-pachana* properties, making it an ideal remedy for *agni deepana* (stimulating digestive fire). It helps in stimulating *Jatharagni*, thus eliminating *ama* (undigested food) from the body. The formulation acts as an *ama pachaka* and *agni deepak* (stimulating digestive fire). This leads to improved digestion and facilitates the proper formation of *rasa dhatu*, which is vital for overall nourishment and health [10].

***Kanchnara Guggulu* -** It is useful in eliminating the vitiated *kapha dosha.* All the drugs of the formulation possess *deepana*, *pachana*, *shothahara*, *lekhana* (scraping) properties. Thus, its effective in managing *galganda* and related thyroid conditions.

***Saraswatarishta* -** The main ingredient is *Brahmi* (Bacopa monneri), which has *Ayushya vardhana* (increases longevity), *Balyam* (gives strength especially to the mind), *Jeevaniya* (promotes energy)**,** *Medhya* (nervine)**,** *Nidrajnana* (promotes sleep) properties. The formulation is used for promoting mental health and cognitive function, but it also plays a supportive role in managing hypothyroidism [11-13].

***Nityananda Rasa* -** It includes herbo mineral ingredients, known for its ability to enhance *agni* (digestive fire), *Nityananda rasa* is particularly relevant for addressing hypothyroidism, which is understood as a condition of *dhatvagni dushti* (disruption of tissue metabolism) in ayurveda. Furthermore, *its vata-shamaka* properties effects help alleviate irritability, making *nityananda rasa* a valuable option in the comprehensive management of hypothyroidism.

***Hamsapathyadi Kashaya* –** The formulation enhances the *agni* and removes *ama*, thus improving the metabolism. The *kashaya* property does *srotoshodhana*, it balances the *vata* and *kapha dosha*, thus the formulation is proved to be effective in addressing the root cause of disease [14, 15].

MODE OF ACTION OF DRUGS USED FOR NASYA

The management of hypothyroidism through *Nasya* is considered an effective approach, as the thyroid glands are located in the region of *Urdhwajatru*, which is classified as a *Kapha Sthana*. *Nasa* is considered as a gateway of *shira* (head); thus, drug administered via nasal route reaches the brain. According to *Ayurveda,* when the drug is administered through nostrils it acts on *Shringataka* (shira marma) and spreads through *Murdha* (brain), *Srota* (ear), *Netra* (eye), *kantha* (throat) and *Shiramukhas* (vessel openings). According to modern physiology, the administration of drug through nasal stimulates the peripheral olfactory nerve which, in turn, activates the olfactory bulb, and the stimulation might extend to the hypothalamus and pituitary gland, influencing the endocrine system. *Vacha* (A*corus calamus*) and *Jatamansi* (*Nardostachys jatamansi*) *siddha taila* is given as *nasya*, both the drugs used have *balya*, *deepana*, *pachana* properties, thus, correcting the *agni*. According to a study conducted, vacha is found effective in managing hypothyroidism.[15] If we look at the modern aspect, both the drugs synergistically work together improving cognitive functions, acting on the nervous system and HPT (Hypothalamic-Pituitary-Thyroid) axis.

S.No.	CHIEF COMPLAINT	DURATION	OBSERVATION
1.	Fatigue and body ache	6 months	Worse in mornings, impacts daily tasks.
2.	Weight gain	4 months	Mainly abdominal region.
3.	Constipation	4 months	Discomfort
4.	Anorexia	3 months	Prefers liquid diet
5.	Sleep disturbances	2 months	Sleepy during day

Table 1: Chief Complaints

Table 2: SHAMANA - 1st 7 Days

S.NO.	DRUG	DOSAGE	TIME OF ADMINISTRATION	ANUPANA
1.	*Chitrakadi Vati [7]*	500mg BD	After meal	Lukewarm water
2.	*Kanchnara Guggulu [8]*	500mg BD	After meal	Lukewarm water
3.	*Saraswatarishta [9]*	15 ml	HS (at bedtime)	Water

Table 3: After 7 Days for 14 days

S.NO.	DRUG	DOSAGE	TIME OF ADMINISTRATION	ANUPANA
1.	*Kanchnara Guggulu*	500mg BD	Empty stomach	Lukewarm water
2.	*Nityananda Rasa* [10]	250mg BD	After meal	Lukewarm water
3.	*Hamsapathyadi Kashaya*	15 ml	Before meal	Water
4.	*Saraswatarishta*	15ml	HS (at bedtime)	Water

Table 4: – For 1 Month

S.NO.	DRUG	DOSAGE	TIME OF ADMINISTRATION	ANUPANA
1.	*Kanchnara Guggulu*	500mg BD	Empty stomach	Lukewarm water
2.	*Hamsapathyadi Kashaya*	15 ml BD	Before meal	Water
3.	*Saraswatarishta*	15 ml	HS (at bedtime)	Water

Table 5: NASYA

PROCEDURE	DRUG	DOSE	DURATION
Nasya	*Siddha Taila (Vacha churna + Jatamansi churna)*	2 Drops	21 days

Table 6: Observations And Result

S.NO.	INVESTIGATION	BEFORE TREATMENT (06-03-2024)	AFTER TREATMENT (29-04-2024)
1.	T3	92 ng/dL	1.04 ng/ml
2.	T4	9.35 µg/dL	12.11 mcg/dl
3.	TSH	9.12 µlU/mL	2.78 µlU/mL

THYROID PROFILE REPORT
BEFORE

TEST NAME	TECHNOLOGY	VALUE	UNITS	Ref. Interval.
TOTAL TRIIODOTHYRONINE (T3)	E.C.L.I.A	92	ng/dL	80-200
TOTAL THYROXINE (T4)	E.C.L.I.A	9.35	µg/dL	4.8-12.7
TSH - ULTRASENSITIVE	**E.C.L.I.A**	**9.12**	**µIU/mL**	**0.54-5.30**

Comments : ***

The Biological Reference Ranges is specific to the age group. Kindly correlate clinically.

Method :

T3,T4 - Fully Automated Electrochemiluminescence Compititive Immunoassay
USTSH - Fully Automated Electrochemiluminescence Sandwich Immunoassay

Pregnancy reference ranges for TSH/USTSH :
Trimester || T3 (ng/dl) || T4 (µg/dl) || TSH/USTSH (µIU/ml)
1st || 83.9-196.6 || 4.4-11.5 || 0.1-2.5
2nd || 86.1-217.4 || 4.9-12.2 || 0.2-3.0
3rd || 79.9-186 || 5.1-13.2 || 0.3-3.5

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Disclaimer : Results should always be interpreted using the reference range provided by the laboratory that performed the test. Different laboratories do tests using different technologies, methods and using different reagents which may cause difference. In reference ranges and hence it is recommended to interpret result with assay specific reference ranges provided in the reports. To diagnose and monitor therapy doses, it is recommended to get tested every time at the same Laboratory.

AFTER

THYROID FUNCTION TEST
SPECIMEN: SERUM

Parameter	Observed Value	Unit	Biological Reference Interval
T3 (Triiodothyronine)	1.04	ng/mL	upto 2 years 1.17 to 2.39 (Infant) 2 - 12 years 1.05 to 2.07 (Children) 13- 21 years 0.86 to 1.92 (Adolscent) 0.6 to 1.80 (Adult) 1st Trimester 0.81 – 1.90 2nd Tri Trimester 1.00 – 2.60 3rd Trimester 1.00 – 2.60
Method : By Chemiluminescence.			
T4 (Thyroxine)	12.11	mcg/dl	upto 2 years 6.00 to 19.9 (Infant) 2 - 12 years 5.50 to 15.10 (Children) 13- 21 years 5.50 to 14.10 (Adolscent) 4.5 to 14.10 (Adult)
Method : By Chemiluminescence.			
TSH Ultrasensitive	2.78	µIU/ml	0.35 to 5.55 During Pregnancy First Trimester : 0.26 - 2.66 Second Trimester : 0.55 - 2.73 Third Trimester : 0.43 - 2.91 0.5 - 10.6 (UP TO 1 YEARS)
Method : By Chemiluminescence.			

Interpretation :
TSH levels may be affected by acute illness and drugs like doapamine and gluco corticoids.Low or undetectable TSH is suggestive of Grave~s disease.TSH between 5.5 to 15.0 with normal T3 T4 indicates impaired thyroid hormone or subclinical hypothyroidism or normal T3 T4 wi this lightly low TSH suggests subclinical Hyperthyroidism.TSH suppression does not reflect severity of hyperthyroidism therefore ,
measurement of FT3 ,FT4 is important.FreeT3 is first hormone to increase in early Hyperthyroidism. Only TSH level can prove to be misleading in patients on treatment. Therefore FreeT3 , FreeT4 along with TSH should be checked.During pregnancy clinically T3 T4 can be high and TSH can be slightly low.

---------- End of Report ----------

CONCLUSION

Hypothyroidism is a metabolic disorder, which can be treated with a combination of *Ayurvedic* formulations along with dietary changes and yogic practices. The patient should have a basic understanding of what are the causes and how the body, mind in functioning, that is when the real healing will occur. The aim of *Ayurveda* is to restore the metabolic harmony, improve the overall quality of life.

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