

An Exploratory Study on the Efficacy of Ayurveda Interventions in Sub-Clinical Hypothyroidism: A Case Study

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ABSTRACT

Introduction: The modern era has seen a significant surge in endocrine disorders, of which Hypothyroidism being a prominent concern. Globally, approximately 2-5% of the population is affected, with urban India reporting a prevalence of 10.95%. The condition predominantly affects the individual in the middle age group with a higher incidence among female. If left untreated Hypothyroidism may cause chronic health complications, necessitating lifelong hormone replacement therapy. Furthermore, Sub-clinical Hypothyroidism (SCH), characterized by elevated TSH levels and normal T4 levels, can also have a profound impact on quality of life, despite being often overlooked. Consequently, there is a growing need to explore Hypothyroidism from *Ayurveda* perspective and develop effective management strategies rooted in this traditional system of medicine.

Materials and Methods: A 33-year-old male patient visited *Kayachikitsa* OPD of JSSAMH on 17/06/2024 and presented with a one-year history of progressive symptoms such as hair loss, decreased appetite, weight gain, lethargy, generalized weakness, accompanied by depressive and anxious mood, and excessive rumination. Laboratory tests revealed elevated TSH levels with normal T3 and T4 six months prior. He was diagnosed with SCH and was advised to undergo *Shodhana* followed by *Shamanoushadi* for about nine months.

Observations and Results: A nine-month *Shamana Chikitsa* and follow-up regimen yielded a notable improvement in the patient's condition, as evidenced by a substantial decrease in TSH levels and a 70% reduction in symptom severity.

Keywords: Sub-clinical Hypothyroidism, TSH, Ayurveda, Shodhana, Shamana

1. INTRODUCTION

The thyroid gland is an indispensable endocrine organ that exerts profound influence on metabolic regulation, growth, and development. Through the biosynthesis of thyroid hormones, notably Triiodothyronine(T3) and Thyroxine(T4), the thyroid gland maintains homeostasis and adapts to fluctuating energy demands. Hypothyroidism characterized by diminished thyroid hormone production, have a significant clinical sequela. The incidence of endocrine disorders, particularly Hypothyroidism, is escalating rapidly in the modern era. Globally, Hypothyroidism affects 2-5% of the population,^[1] while Urban India reports a significantly higher prevalence of 10.95%, primarily affecting females aged between 46-54 years.^[2] Furthermore, Subclinical Hypothyroidism (SCH), characterized by elevated Thyroid Stimulating Hormone (TSH) levels with normal T4 and T3 levels, has emerged as a major public health concern, affecting approximately 4-10% of the general population. Notably, SCH exhibits a significant age-related trend, with prevalence peaking above 55 years and being lowest among 18-35-year-olds. Additionally, females are disproportionately affected by SCH, with a significant higher diagnosis rate compared to males.^[3] Most people with hypothyroidism symptoms and confirmed thyroxine deficiency are treated with a

synthetic long-acting form of thyroxine, known as Levothyroxine(L-Thyroxine).^[4] From an *Ayurvedic* perspective Hypothyroidism cannot be directly correlated with a single specific entity however by analysing the symptoms it can be understood through various conceptual frameworks including *Ama* related disorders, *Rasapradoshaja Vikara*(disorders related to *Rasa Dhatu*), *Galaganda*(Goitre), *Kaphaja Shotha*(*Kapha* related oedema), *Kaphaja Pandu Roga*(Anemia), *Udanavrita Samana*(obstruction of *Udana Vayu* by *Samana Vayu*), *Kaphavrita Udana*(Obstruction of *Udana Vayu* by *Kapha*), *Kaphaja Nanatmaja Vyadhi*(diseases caused by *Kapha* alone), *Bahudosh Avastha*(Multiple *Dosha* involvement).The presentation of Hypothyroidism can vary depending on the individual's *Prakruti* (bodily constitution) and the specific symptoms, highlighting the importance of a personalised approach to diagnosis and treatment. The *Chikitsa*(treatment) of this disease should be mainly focused on the *Samprapti Vighatana* by *Deepana - Pachana* and *Langhana* since it is a *Santarpanajanya Vyadhi*. This case study aims to explore the *Ayurvedic* management of Hypothyroidism.

2. CASE REPORT

Chief Complaints (*Pradhana Vedana*):

A 33year old male patient registered with OPD No. 181264, approached Kayachikitsa OPD of JSSAMH on 17-06-2024. He presented with the following complaints:

- Excessive hair loss, reduced appetite, weight gain, heaviness of the body, generalized weakness in the last 1 year.
- Associated with complaints of depressed, anxious mood and overthinking in the last 1 year.

HISTORY OF PRESENT ILLNESS (*Pradhana Vyadhi Vruttanta*):

A 33year old male patient previously asymptomatic, presented with a 1-year history of progressive symptoms including excessive hair loss, decreased appetite, weight gain, generalized body heaviness, and weakness. These physical symptoms were accompanied by a depressed mood, anxiety, and excessive rumination. Despite using anti-hair fall shampoo, serums and other cosmetic products the patient couldn't appreciate any significant changes. Six months prior to the presentation, patient was diagnosed with Subclinical Hypothyroidism following a routine health checkup. Subsequent to the diagnosis patient underwent a 3-month course of herbal treatment prescribed through an online platform, with no discernible improvement in symptoms or Thyroid Function Tests (TFTs), prompting the patient to seek further evaluation and management at our hospital and he was admitted on June 20th 2024 for the management of the same.

HISTORY OF PAST ILLNESS (*Adhyatana Vyadhi Vruttanta*):

- K/C/O Hypothyroidism since 6 months (not on any medications)
- N/K/C/O HTN/DM/ any other systemic illness.

MEDICATION HISTORY (*Chikitsa Vruttanta*):

- Patient has consumed herbal medications for 3months (details not known)

FAMILY HISTORY (*Kotumbhika Vruttanta*):

- Patient's mother is a K/C/O Hypothyroidism for the past 15 years.
- Rest of the family members are healthy with no contributory history.

PERSONAL HISTORY (*Vyakthika Vruttanta*):

Ahara (Diet): Consumes mixed diet

Vihara (Lifestyle): Stressful occupation and sedentary lifestyle.

Nidra (Sleep):

- **Timings of sleep** - Irregular timings of sleep.

Usually sleeps at late-night between 1:30 AM to 2:30 AM.

- **Quality of sleep** - Sound Sleep for about 4-5hours.
- **Day Sleep** – For about 2-3 hours for the last 4 years.

Vyasana (Habits):

- Coffee 3-4 cups per day and 1 cup of coffee at midnight.
- No habit of alcohol/tobacco consumption.

Agni (Appetite): Reduced

Mala (Defecation):

- **Frequency** - 2-3 times/day.
- **Consistency** - Normal, occasionally hard stools.

Mutra (Micturition):

- **Frequency** - 5-6 times/day; 1-2 times/night.
- **Colour** – Straw coloured.

3. SYSTEMIC EXAMINATION

CVS EXAMINATION - S1, S2 heard, no murmurs.

CNS EXAMINATION – Conscious and oriented to time, place and person.

RESPIRATORY SYSTEM EXAMINATION - B/L NVBS heard, No added sounds.

GIT EXAMINATION - Soft, No Tenderness in all 9 quadrants, bowel sounds present, no organomegaly.

MUSCULOSKELETAL EXAMINATION –

Gait – Normal.

Arms – Appearance – normal, ROM - possible without any pain.

Legs – Appearance – normal, ROM - possible without any pain.

Spine – Normal curvature, no deformity

MENTAL STATUS EXAMINATION –

- General appearance and behaviour - Normal
- Speech - Normal
- Mood - Anxious
- Thoughts - Anxious, overthinking, No delusions
- Perceptions – Normal, No hallucinations
- Insight - Normal
- Judgement -Normal
- Cognition – Normal

INTEGUMENTARY SYSTEM EXAMINATION -

- ☐ On Inspection - Normal
- ☐ On Palpation - Dryness ++

ON EXAMINATION OF SCALP AND HAIR:

On Inspection:

Scalp skin - oily, no lesions, no excoriations, no flaking or scaling noted.

Scalp hair - diffused thinning of hair.

Hair pull test – positive.

DASHAVIDHA PAREEKSHA –

1. *Prakruti – Shareerika - Vata-Pitta*

Manasika - Rajas, Tamas

2. *Vikruthi -*

Hetu - Ahita Ahara Sevana, Akala Bhojana, Diva Swapna, Ratri Jagarana, Avyayama, Chinta, Shoka, Udhwega.

Dosha – Kapha Pradhana Tridosha Dushti

Dushya - Rasa, Medha

Desha – Bhoomi Desha - Sadharana

Deha Desha - Sarva Shareera

Kala - Sarvakala(throughout the day)

Bala - Dosha Bala and Vyadhi Bala - Madhyama

Shareerika Bala – Madhyama

3. *Sara - Avara*

4. *Samhanana - Pravara*

5. *Pramana - Pravara*

6. *Satmya - Madhyama*

7. *Satva - Madhyama*

8. *Aahara Shakthi -*

Abhyavarana Shakthi - Madhyama

Jarana Shakthi – Avara

9. *Vyayama Shakthi - Avara*

10. *Vaya – Madhyama*

NIDANA PANCHAKA:

- *Nidana - Ahita Ahara Sevana, Akala Bhojana, Diva Swapna, Ratri Jagarana, Ayyayama, Chinta, Shoka, Udwega.*
- *Poorvaroopa -*
 - ✓ Weight gain
 - ✓ Easy fatiguability
 - ✓ Increased day time sleep with snoring
 - ✓ Heaviness of the body
- *Roopa-*
 - ✓ Above said symptoms in a fully-fledged manner
 - ✓ Severe hair loss
 - ✓ Reduced appetite
 - ✓ General malaise
 - ✓ Complaints of depressed mood, overthinking and anxiety in the last 1 year
- *Upashaya – Vyayama and Hithashana*
- *Anupashaya - On Taking Mental Stress*

SAMPRAPTI:

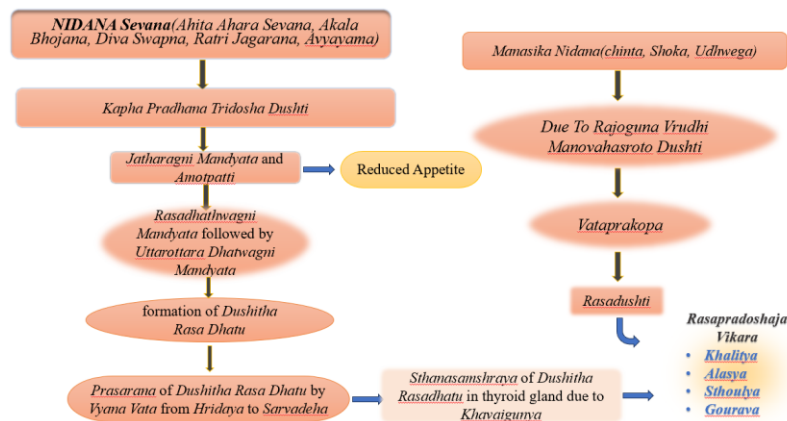



Fig.1 – Samprapti (Aetiopathogenesis)

INVESTIGATIONS:



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Page 1 of 1

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|---------|----------------|-----------|------------------|
| Name | Mr. ASHISH | Ref By | DR. CHAITANYA |
| Age/Sex | 33Year(s)/Male | Reg Date | 11/06/2024 15:00 |
| Lab. No | R 159584 | Pat. No | 11-06-2024/117 |
| | | Corporate | NON CORPORATE |

HORMONE ANALYSIS REPORT

| Test Name | Observed Values | Reference Range | Sample |
|---|-----------------|-------------------|--------|
| Thyroid Stimulating Hormone (TSH) - (Chemiluminescence) | 24.36 | 0.25 - 5.0 mIU/ml | SER |

-----End Of HORMONE ANALYSIS REPORT-----

N. S. Sriram
 DR. N. SRIRAM
 Pathologist
 Reported on 11/06/2024 18:01

Dr. C. S. MOHANI RAJ, M.D. Consultant Pathologist
 Dr. N. SIDHARTH SHANKAR Consultant Pathologist
 "Thanks for your kind referral"

◆ DIGITAL X - RAY ◆ ULTRASOUND SCAN / COLOUR DOPPLER ◆ 2D - ECHOCARDIOGRAPHY
 ◆ T.M.T. (TREADMILL TEST) ◆ PULMONARY FUNCTION TEST (PFT) - CENTRE

Fig.2 –TSH before Treatment

CHIKITSA:

| S.No. | Chikitsa | Treatment Medicines | Date |
|-------|------------------------------------|--|--|
| 1. | Deepana - Pachana | Tab. Chitrakadi Vati | from 17-06-24 to 19-06-24 |
| 2. | Snehapana | Guggulu Tiktaka Ghrita | from 20-06-24 to 24-06-24 (30, 65, 85, 110, 130ml respectively from 1 st to 5 th day) |
| 3. | Sarvanga Abhyanga and Bashpa Sweda | with Murchita Tila Taila | from 25-06-24 to 28-06-24 |
| 4. | Virechana | With 25gms of Trivruth Lehya | on 28-06-24 Patient attained <i>Madhyama Shuddhi</i> with 13 Vegas. |
| 5. | Samsarjana Krama | Peyadi Samsarjana was advised for 5 Days | 28-06-24 to 02-07-24 |

Table 1: Virechana Karma

| S.No. | Oral medications given | Dose | Time of administration and Anupana |
|-------|-------------------------------|-------|------------------------------------|
| 1. | Tab. Chaushat Prahara Pippali | 1 TID | After food with <i>Ushna Jala</i> |
| 2. | Tab. Arogyavardhini Vati | 1 BD | Before food with <i>Ushna Jala</i> |
| 3. | Tab. Kanchanara Guggulu DS | 2 BD | After food with <i>Ushna Jala</i> |
| 4. | Tab. Trayushanadhya Louha | 1 BD | After food with Triphala Kashaya |
| 5. | Himasagara Taila | | For <i>Shiro-Pichu</i> |

Table 2: Shamana Oushadhi

Medicines were started on 03-07-24 and given for 40 days till 12-08-24.

4. RESULT

Subjective Parameters -

| Symptoms | Before Treatment | After Treatment |
|----------------------------|------------------|---|
| Hair Loss | Present | Reduced by 40% with negative hair pull test |
| Reduced Appetite | Present | Appetite was improved |
| Weight Gain | Present | Reduced by 6kgs |
| Heaviness of the body | Present | Reduced completely |
| Generalized weakness | Present | Absent |
| Depressed and Anxious mood | Present | Absent |
| Overthinking | Present | Present |

Objective Parameters –

| | Before Treatment | After Treatment |
|-----|------------------|-----------------|
| TSH | 24.36 mciU/ml | 15.1 mciU/ml |



Fig.3 – TSH after treatment

5. DISCUSSION

Subclinical Hypothyroidism can be understood through the lens of *Ayurveda*, where the condition is characterized by a sequential vitiation of *Dhatu*s. The pathogenesis of this patient involves *Agnimandhya* of *Jatharagni* (Digestive fire), *Rasa-dhatwagni* and *medho-dhatwagni* leading to *Aprashasta* (improperly formed) *Rasa* and *Medho Dhatu* and subsequent manifestation of symptoms.^[5] In subclinical hypothyroidism, there will be excess TSH and normal T3 and T4. Excess TSH can be understood as *Bahudrava Sleshma*.^[6]

The therapeutic strategy for managing Subclinical Hypothyroidism focuses on mitigating the aggravated *Kapha* and *Vata Doshas*, which are involved in the disease process. *Virechana* (purgation therapy), a form of *Langhana* is employed to eliminate excess *Kapha* and alleviate *Vata* related symptoms, thereby restoring *Dosha* balance.^[7]

Virechana in Hypothyroidism:

DEEPANA AND PACHANA - *Agnimandhya* can be corrected in Hypothyroidism which helps in better usage of TSH by the thyroid gland. In this case for *Deepana Pachana*, *Chitrakadi Vati*^[8] was chosen which consists *Dwi-kshara* (*Sarja Kshara* and *Yava Kshara*), *Chitraka*, *Vyosha*(*Trikatu*), *Lavana* and other *Teekshna* (sharp and penetrating) *Dravyas* which aids in activating the thyroid gland and thereby regulating production of TSH.

SNEHAPANA - *Guggulu Tiktaka Ghrita*^[9] was chosen for the purpose of *Snehapana* in this case as it is directly indicated for *Urdhwa-jatru Vikara* (diseases of supra-clavicular region). And it also has *Deepaniya*, and *Tikta Rasa Dravyas* which aids in *Kapha-harana*. By *Snehapana* the *Doshas* are brought into the *Koshta*(from *Shakha*(extremities).To combat the symptoms like weight gain, hair loss, reduced appetite and heaviness of the body etc., this *Ghrita Yoga* was chosen.

VISHRAMA KALA

Sarvanga Abhyanga - *Murchita-Tila Taila*^[10] is helpful in reducing the symptoms like dryness of the skin and generalized weakness can be reduced. *Abhyanga* is useful for external oleation.

VIRECHANA – *Trivrut Lehya*^[11] is a *Sukha Virechaka* and 25gms was administered to the patient which resulted in 13 *Vegas* and patient had *Madhyama Shudhi*. In Hypothyroidism, *Virechana* acts on removing the vitiated *Doshas*. In this case there is *Kapha Pradhana Tridosha Dushti*. *Virechana* is said to act on all the *Tridosha*. Firstly, it acts on *Pitta-harana* followed by *Kapha-harana* and *Vata Shamana*. Hence *Virechana* is helpful in this case.

6. SHAMANA OUSHADHI

1. **Tab. Chaushat Prahara Pippali** is *Kapha- Vatahara* and has *Laghu, Snigdha Guna* having *Katurasa* and *Ushna Veerya*. Hence it has *Hetu Vipareeta* and *Vyadhi Vipareeta* properties.^[12]
2. **Tab. Arogyavardhini Vati** – Chosen to enhance the liver and aid in digestion. *Arogyavardhini Rasa* is used as a *Nitya Virechaka* and removes if there is any remenant *Doshas* left after *Virechana*.^[13]
3. **Tab. Kanchanara Guggulu DS** – *Kanchanara Guggulu* is said to be the drug of choice in all kinds of Thyroid Disorders. It contains *Varuna, Twak, Ela, Tejopatra*, etc., which has the properties of *Kapha-medhohara, Deepana* and *Pachana*.^[14]
4. **Tab. Trayushanadhya Louha** - *Trayushanadya Lauha* is having *Agni Vardhaka* property and also contains *Chathur Lavana* ^[15] which may act on iodine deficiency which is one of the major causes of Hypothyroidism.^[16] *Triphala Kashaya* having *Tridosahara* properties and also does *Karshana*, which aids in relieving symptoms of Hypothyroidism and it is also a rich source of vitamin C,^[17] which may help in the absorption of *Lauha Bhasma*.
5. **Himasagara Taila** - *For Shiro- Pichu* will be helpful to reduce symptoms like overthinking and anxiety by controlling *Vata* and inducing sleep and it also reduces the stress. ^[18]

Hypothyroidism should be considered as *Vyadhi-Sankara* (Syndrome) and should always be focused on the presentation which gives us an idea about the *Dhatu* involved and the treatment is always different in each individual based on *Prakruti, Roga-rogi Bala, Dhatu Dushti* etc.

7. CONCLUSION

This case demonstrates the potential of *Ayurveda* treatment in the management of Subclinical Hypothyroidism. The patient showed significant reduction in TSH values after *Shodhana* and *Shamana Chikitsa*. The results suggests that ayurveda can offer a holistic approach in the management of Hypothyroidism, focusing on restoring *Dosha* balance, and addressing the underlying Patho-physiology.

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