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Ayurvedic Intervention in Severe Subclinical Hypothyroidism: A Case Report of Clinical and Biochemical Improvement

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ABSTRACT:

Subclinical hypothyroidism is characterized by an elevated serum thyroid-stimulating hormone (TSH) concentration with free thyroxine (FT4) remaining within the reference range. When TSH is markedly elevated, the condition may be described as severe or marked subclinical hypothyroidism. This case report describes the clinical and biochemical response to a sequential Ayurvedic treatment protocol. A 22-year-old female presented with excessive hair fall and generalized weakness for five months. Serum TSH was markedly elevated at 85µIU/mL, while FT4 and FT3 remained within the laboratory reference range and thyroid ultrasonography showed normal morphology. She had not previously received thyroid hormone replacement. Treatment consisted of *Deepana-Pachana* with *Triphala Churna* and *Shunti Siddha Jala* for three days, followed by *Koshtha Shodhana* with *Avipattim Churna* 30 g as a single administration. This was followed by *Kanchanara Guggulu* (500mg), two tablets twice daily, with *Hamsapada Kashaya* 20 mL as *Anupana* for three months. *Pratimarsha Nasya* with *Go-Ghrita,* four drops in each nostril, was administered for 14 consecutive days each month for three months, along with dietary and lifestyle advice. Hair fall and generalized weakness progressively improved, appetite normalized, and overall well-being increased. Serum TSH decreased from 85µIU/mL at baseline to 10.087µIU/mL during follow-up and to 4.95µIU/mL with treatment of 3 months. FT3 and FT4 remained within the laboratory reference range. No adverse drug reactions were reported. This case was associated with clinical improvement and progressive reduction in TSH following a sequential Ayurvedic intervention. Because FT4 remained within the reference range, the case should be interpreted as severe subclinical hypothyroidism rather than overt hypothyroidism.

KEYWORDS: *Hamsapadadi Kashaya*, *Kanchanara Guggulu*, *Koshta Shodhana*, *Pratimarsha Nasya*, Severe subclinical hypothyroidism.

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INTRODUCTION:

Subclinical hypothyroidism (SCH) is characterized by an elevated serum thyroid-stimulating hormone (TSH) concentration with FT4 within the reference range. In contrast, overt hypothyroidism is characterized by an elevated TSH accompanied by a low FT4. The present case had a markedly elevated TSH of 85µIU/mL (Normal value:0.38-4.31µIU/mL), with FT4 and FT3 within the laboratory reference range; therefore, it is appropriately classified biochemically as severe or marked subclinical hypothyroidism rather than overt hypothyroidism. [1,2,3] According to reports, the incidence of subclinical hypothyroidism is between 3 and 10% in the general adult population, with greater rates among women and older people. [4,5] Prevalence estimates from Indian epidemiological studies have ranged from roughly 8% to 11%, underscoring its significant public-health significance [4]. The present case is clinically noteworthy because of the disproportioning high TSH concentration despite of preserved circulating FT4and FT3 levels.

Management of subclinical hypothyroidism (SCH) is individualized according to the degree and persistence of TSH elevation, age, clinical symptoms, underlying aetiology, and associated risk factors. Levothyroxine is the standard pharmacological therapy when treatment is indicated, particularly in patients with persistent TSH concentrations >10mIU/L. The common side effects of this drug due to excess dose are palpitations, anxiety, perspiration, muscle cramps, atrial fibrillation and osteoporosis. It also got some limitations-despite of intake of medicine patients suffer with symptoms, require regular monitoring, lifelong replacement. In the present case, the patient declined hormonal supplementation and did not receive levothyroxine during the reported period of Ayurvedic treatment. This clinical circumstance provided an opportunity to document the clinical and biochemical changes observed during individualized Ayurvedic management in a patient with markedly elevated TSH and preserved FT4 and FT3 concentrations.

Subclinical hypothyroidism is not described as a distinct disease entity in the classical Ayurvedic texts. Therefore, the present case was interpreted using the principle of *Trividha Bodhya Sangraha*, with consideration of involved *Dosha*, *Dushya*, *Srotas*, and *Agni,* followed by an individualized therapeutic approach. Based on the patient's clinical manifestations and ayurvedic assessment, the condition conceptualized as involving *Agnimandya*, *Ama* formation, *Rasa Dhatu Dushti*, *Srotorodha*, and subsequent aggravation of *Vata*. Impaired *Jatharagni* may result in inadequate tissue metabolism and defective nourishment of successive *Dhatus*, producing symptoms comparable to hypothyroidism. From this Ayurvedic perspective, the therapeutic objectives were to improve *Agni*, facilitate *Ama Pachana*, promote appropriate *Koshtha Shodhana*, alleviate

Srotorodha, restore *Dosha* equilibrium, and support normal *Dhatu* metabolism.

Following the clinical assessment, treatment was initiated with *Deepana-Pachana* using *Triphala Churna* and *Shunti-siddha Jala* for 3 days, followed by *Koshtha Shodhana* with *Avipattim Churna.* Subsequently, *Shamana Aushadhi* comprising *Kanchanara Guggulu*, 2 tablets, administered with 20 mL of *Hamsapadadi Kashaya* as *Anupana* for 3 months. In addition, *Pratimarsha Nasya* with *Shuddha Go-ghrita* was administered for 14 consecutive days during each month until completion of the treatment period.

CASE REPORT:

A 22-year-old unmarried female student attended the Kayachikitsa OPD of ITRA, Jamnagar, on 5 July 2025 with excessive hair fall and generalized weakness for five months. Symptoms had developed gradually without a preceding illness. Mildly reduced appetite was also reported. She had no previous thyroid disease and had never received levothyroxine or other thyroid hormone replacement. There was no history of diabetes mellitus, hypertension, tuberculosis, autoimmune disease or other significant systemic illness. Family history of thyroid disorders was negative. Menstrual cycles were regular with normal flow. She followed a vegetarian diet and denied for history of smoking, alcohol and tobacco use.

Clinical Findings

General Examination:

The patient was conscious, cooperative, and well oriented to time, place, and person. Table no.1 details the personal data and clinical examination findings:

Ayurvedic Assessment

Detailed Ayurvedic examination suggested involvement of *Kapha* and *Vata* with impairment of *Agni* and *Rasa Dhatu*. Detailed in Table no. 2.

Samprapti Ghataka- are mentioned in table-3

Diagnostic assessment

Based on the markedly elevated serum TSH with FT4 and FT3 within the laboratory reference ranges, the biochemical diagnosis was severe subclinical hypothyroidism. Thyroid ultrasonography showed normal morphology. Anti-thyroid peroxidase antibody testing was not reported, and therefore an autoimmune etiology could not be established from the available data. Routine hematological and biochemical investigations were performed to exclude associated systemic disorders.

THERAPEUTIC INTERVENTION

Treatment was planned according to the Ayurvedic principle of *Samprapti Vighatana*, with an initial focus on correction of *Agnimandya* and *Ama*, followed by *Koshtha Shodhana* and subsequent *Shamana Chikitsa*. The intervention was administered in sequential stages.

Stage I: *Deepana-Pachana*.

The treatment was initiated with 3gm of *Triphala Churna*[6] administered three times daily before meals with lukewarm water, along with *Shunti-siddha Jala* for 3 consecutive days. This initial phase was intended to support *Agni Deepana* and *Ama Pachana*, promote appropriate digestion and metabolism, and prepare the patient for the subsequent stage of *Koshtha Shodhana*.

Stage II: *Koshtha Shodhana.*

Following completion of *Deepana-Pachana, Koshtha Shodhana* was performed using *Avipattim Churna* [7] 30 g early in the morning empty stomach with 100ml of *Draksha Kashaya*. *Madhyama Shuddhi* observed. 3 days *Samsarjana Krama* was advised. This intervention was intended to facilitate elimination of accumulated *Doshas* and prepare the patient for subsequent *Shamana Chikitsa.*

Stage III: *Shamana Chikitsa*.

After completion of *Koshtha Shodhana, Kanchanara Guggulu* [8] was administered at a dose of two tablets twice daily, with *Hamsapada Kashaya* [9] 20 mL as *Anupana*, for three months. The formulation was selected considering the clinical presentation and Ayurvedic assessment of *Agnimandya, Rasa Dhatu* involvement, and *Srotorodha.*

As an adjunctive therapy, *Pratimarsha Nasya* with *Shuddha Go-Ghrita* was administered at a dose of four drops in each nostril for 14 consecutive days each month for three months. Dietary and lifestyle measures were advised throughout treatment

TIMELINE: The detail time lines mentioned in table-4.

RESULTS:

The patient completed the planned three-month treatment protocol with good compliance and without any reported adverse drug reactions. All prescribed medications were well tolerated, and no interruption of therapy was required during the treatment period.

Clinically, gradual improvement was observed from the first month of treatment. The patient reported a progressive reduction in hair fall, improvement in generalized weakness, normalization of appetite, increased physical activity, and an enhanced sense of well-being. Menstrual cycles remained regular throughout the treatment period, with no new symptoms or deterioration in the menstrual pattern.

Serial biochemical investigations demonstrated progressive improvement in thyroid function. The baseline serum TSH concentration was markedly elevated at 85µIU/mL. During follow-up, serum TSH decreased to 10.087µIU/mL and subsequently declined to 4.95µIU/mL after completion of three months of therapy. FT3 and FT4 remained within the laboratory reference range throughout the treatment period. The progressive reduction in TSH, together with maintenance of FT3 and FT4 within the

reference range, indicated improvement in biochemical thyroid status.

Routine haematological and biochemical investigations remained within clinically acceptable limits throughout the treatment period. Renal and hepatic biochemical parameters remained within normal limits. Overall, the treatment was well tolerated, with no adverse drug reactions reported during the three-month treatment period.

Table- 1: Personal data and clinical examination findings

Parameter	**Finding**
Age	22 years
Sex	Female
Height	163 cm
Weight	54 kg before and after treatment
BMI	20.3 kg/m^2
Pulse	76/min
Blood pressure	110/70 mmHg
Respiratory rate	16/min
General examination	Afebrile; pallor, icterus, cyanosis, clubbing, lymphadenopathy and pedal edema absent
Thyroid examination	No visible enlargement, tenderness, nodularity or palpable swelling
Systemic examination	No clinically significant abnormality

Table- 2: Ayurvedic Assessment

Parameter	**Findings**
Prakriti	*Pitta-Vata*
Vikriti	*Vata-Kapha-Pitta*
Sara	*Madhyama*
Samhanana	*Madhyama*
Satmya	*Madhyama*
Satva	*Madhyama*
Ahara Shakti	*Madhyama*
Vyayama Shakti	*Madhyama*
Vaya	Yuva (22 years)
Agni	*Vishamagni*
Koshtha	*Mridu*
Mala	Once daily, semisolid
Mutra	Normal
Nidra	*Samyaka*
Nadi	76/min, *Vata-Pitta* predominance

Jihva	Mildly coated
Shabda	Normal
Sparsha	Normal
Drik	Normal
Aakruti	Madhyama

Table 3. *Samprapti Ghataka*

Component	**Findings**
Dosha	*Pitta-Vata* predominance with *Kapha* association
Dushya	*Rasa Dhatu*
Agni	*Vishamagni*
Ama	*Jatharagni Janya, Rasadhatwagni Janya*
Srotasa	*Rasavaha* and *Annavaha Srotasa*
Srotodushti	*Vimargagamana* with *Sanga*
Udbhava Sthana	*Amashaya*
Adhisthana	*Rasa Dhatu*
Rogamarga	*Abhyantara*
Vyaktasthana	Whole body with predominant involvement of hair follicles (*Kesha*) and metabolism.

Table-4: timeline of clinical events

DATE	CLINICAL EVENTS
05th July 2025	First OPD consultation
10th July 2025	Diagnosis confirmed; Ayurvedic treatment initiated
10th July to 13th July 2025	*Deepana* and *Pachana* with a *Triphala Churna* and *Shunti Sidda Jala*
14th July 2025	*Koshtashodhana* with *Avipattim Churna*
14th July to 16th July 2025	*Samsarjana Krama (3 Annakala)*
18th July 2025	First follow-up: *Shamanoushadi- Kanchanara Guggulu* 2 tablet twice a day with *Hamsapadadi Kashaya* 20ml empty stomach *Pratimarsha Nasya* with *Shuddha Go-grita* 4 drops in each nostril at night
1st August 2025	Second follow-up: *Kanchanara Guggulu* 2 tablet twice a day with *Hamsapadadi Kashaya* 20ml empty stomach
16th August 2025	Third follow-up: *Kanchanara Guggulu* 2 tablet twice a day with *Hamsapadadi Kashaya* 20ml empty stomach *Pratimarsha Nasya* with *Shuddha Go-grita* 4 drops in each

	nostril at night
30th August 2025	Fourth follow-up: *Kanchanara Guggulu* 2 tablet twice a day with *Hamsapadadi Kashaya* 20ml empty stomach
13th September 2025	Fifth follow-up: *Kanchanara Guggulu* 2 tablet twice a day with *Hamsapadadi Kashaya* 20ml empty stomach *Pratimarsha Nasya* with *Shuddha Go-grita* 4 drops in each nostril at night
27th September 2025	Sixth follow-up: *Kanchanara Guggulu* 2 tablet twice a day with *Hamsapadadi Kashaya* 20ml empty stomach
29th September 2025	Final assessment and completion of treatment

Table-5: Clinical Outcome

Clinical Parameter	Before Treatment	After Treatment
Hair fall	Severe	Markedly reduced
Generalized weakness	Severe	Absent
Appetite	Reduced	Normal
Sleep	Normal	Normal
Menstrual cycle	Regular	Regular
General well-being	Poor	Significantly improved

Table-6: Thyroid Profile During Follow-up

Investigation	Baseline [10/07/2025]	During Treatment [16/08/2025]	After Treatment [29/09/2025]
TSH (μIU/mL)	85	10.087	4.95
FT3 (pg/mL)	2.19	2.72	2.69
FT4 (ng/dL)	1.07	1.12	1.01

DISCUSSION:

In the present case, the markedly elevated baseline serum TSH of 85μIU/mL was associated with clinical manifestations including hair fall, generalized weakness, reduced appetite, and diminished physical activity, while FT3 and FT4 remained within the laboratory reference range. Thus, the biochemical profile was compatible with subclinical hypothyroidism despite the unusually marked elevation of TSH. Markedly elevated TSH levels, particularly ≥10μIU/mL, are associated with an increased risk of progression to overt hypothyroidism. Although levothyroxine remains the standard treatment when indicated, some patients may continue to experience nonspecific symptoms despite biochemical normalization. Therefore, the present case reports the clinical and biochemical response to a structured Ayurvedic protocol aimed at addressing

associated metabolic disturbances and potentially reducing the risk of disease progression.

Ayurveda does not describe hypothyroidism as a distinct disease entity; however, its clinical manifestations may be interpreted through the principles of *Agnimandya*, *Ama*, *Kapha* predominance, *Rasa Dhatu Dushti*, and *Srotorodha*. Impairment of *Jatharagni* may result in defective digestion and metabolism, with subsequent formation of *Ama*. In association with aggravated *Kapha*, this may contribute to obstruction of normal *Srotas* and impaired tissue nourishment. This *Ama* further disrupts *Rasa Dhatvagni* and *Bhutagni*, leading to impaired *Dhatu Poshana* by *Samata* in *Rasa Dhatuvaha Srotas*, which is clinically manifested as *Alasya, Angamarda, Klama, Akala Palitya,* and *Khalitya* etc in the present case. This *Srotogata Ama* also hampers normal movement of *Vata Dosha* which may provide an Ayurvedic framework for understanding manifestations such as fatigue, weakness, hair fall, reduced appetite, and diminished physical performance.

The present case was managed according to the classical principle of *Samprapti Vighatana*, with treatment directed sequentially toward correction of *Agni*, removal of accumulated *Doshas*, and subsequent *Shamana Chikitsa*.

Triphala Churna, comprising *Haritaki, Bibhitaki,* and *Amalaki*, was used for *Deepana-Pachana* and *Anulomana*, supporting digestive function and facilitating elimination of accumulated *Ama*. *Shunti Siddha Jala*, prepared with *Shunti Churna*, was used as an adjunctive *Deepana-Pachana* measure. The *Katu Rasa, Ushna Veerya, Laghu,* and *Tikshna Guna* of *Shunti* are traditionally associated with *Agni Deepana* and *Ama Pachana*, while ginger constituents such as gingerols and shogaols have demonstrated gastrointestinal, antioxidant, and anti-inflammatory effects [10]. These actions may have supported gastrointestinal and metabolic function.

Following improvement in *Agni* after *Deepana-Pachana*, mild *Koshtha Shodhana* was performed using *Avipattim Churna* [11]. This step was intended to achieve controlled bowel cleansing and facilitate the elimination of accumulated *Doshas*, thereby preparing the patient for subsequent *Shamana Chikitsa*. The presence of *Trivrit* in the *Avipattim Churna* provides a *Sukha Rechana* effect, particularly supporting the elimination of *Pitta* and associated morbid factors from the gastrointestinal tract. In addition, ingredients such as *Lavanga* and *Trikatu* possess predominantly *Ushna* and *Deepana-Pachana* properties, which may further support digestion and facilitate the clearance of residual *Ama*. Thus, *Koshtha Shodhana* served as a preparatory intervention to optimize gastrointestinal function before initiation of the principal therapeutic regimen.

After administration of *Deepana, Pachana,* and *Koshtashodhana*, the patient experienced a feeling of lightness in the body (*Laghuta*), better

appetite, and improved energy during daily activities. The symptoms suggest improvement in *Agnimandya* and reduction of *Ama*, with relief in the associated *Srotorodha*. Hair fall showed a mild reduction, but the improvement was not yet satisfactory. As the condition was considered to involve an underlying *Dosha-Dushya Sammurchana* rather than being limited to hair fall alone, *Shamana Chikitsa* was continued to address the underlying pathology and achieve overall clinical improvement.

Shamana Chikitsa: *Kanchanara Guggulu* was administered at two tablets twice daily with *Hamsapadadi Kashaya* 20 mL as *Anupana* for three months. It was selected considering the assessed *Kapha-Vata* predominance, for clearing *Srotorodha* and *Rasa Dhatu* involvement. Thyroid hormones have direct role in hair-follicle biology, influencing keratinocyte proliferation, mitochondrial activity and the maintenance of anagen phase. Thyroid hormone deficiency can promote premature transition of follicles from anagen to telogen, resulting in diffuse hair shedding. *Kanchanara Guggulu* and *Hamsapadadi Kashaya* may exert indirect beneficial effect on hair-fall by correcting the underlying metabolic and thyroid dysfunction. The ingredients of *Kanchanara Guggulu-Kanchanara Twak, Trikatu, Triphala, Varuna and Guggulu* helps in clearing *Srotogata Ama* and enhancing the *Dhatvagni* by their *Laghu, Teekshna, Ushna Veerya* and *Amahara, Srotoshodhana* effects. By this there will be proper *Samvahana* of *Rasadhi Dhatus* and *Vayu* in the *Srotas.* Experimental work with Z-guggulsterone, a constituent derived from *Guggulu* (*Commiphora mukul*), demonstrated increased thyroidal iodine uptake and enhanced thyroid peroxidase and protease activity in rats, indicating thyroid-stimulatory potential [13]. In addition, *Kanchanara* (*Bauhinia variegata*), a principal ingredient of the formulation, contains phenolic and flavonoid constituents with demonstrated antioxidant activity in vitro [14]. A recent clinical trial evaluating *Kanchanara Guggulu* in primary hypothyroidism has also provided clinical data on thyroid and metabolic parameters [15]. The *Hamsapadadi Kashaya* formulation comprises *Hamsapadi* (*Adiantum lunulatum*), *Guduchi* (*Tinospora cordifolia*), *Nimba* (*Azadirachta indica*), *Pippali* (*Piper longum*) and *Vasa* (*Adhatoda vasica*). All these ingredients collectively act as *Bhutagni* and *Dhatvagni* enhancer through their *Tikta Rasa* and *Srotoshodhana* effects along with its *Deepana* and *Pachana* benefits. By this there will be proper nourishment of all the dhatus. Experimental studies of *Tinospora cordifolia* and *Adiantum, Adhatoda vasica* species have demonstrated antioxidant, hepatoprotective and anti-inflammatory effects [16,17, 18]. Pippali has demonstrated potential thyroid-related activity in a randomized clinical study of primary hypothyroidism [19]. Both *Kanchanara Guggulu* and *Hamsapadadi Kashaya* may exert a multimodal metabolic and antioxidant effect.

Pratimarsha Nasya with *Shuddha Go-Ghrita* was administered at a dose of 4 drops in each nostril at bedtime, for 14 days per month over a period of 3 months. From an Ayurvedic perspective, *Nasya* may additionally support the regulation of *Vata* functioning in *Urdhwajatrugata Srotasa* and the correction of the underlying *Dosha-Dushya Sammurchana*. From a contemporary perspective, substances administered intranasally may reach the brain through the olfactory and trigeminal pathways, potentially influencing central neurophysiological functions. Since the hypothalamus plays a key role in regulating the HPT axis through TRH and TSH [20,21], *Nasya* with *Shuddha Go-Ghrita* may have a supportive role in neuroendocrine regulation. However, this mechanism is only a plausible hypothesis, and direct effects of *Nasya* on TRH or TSH have not yet been established.

CONCLUSION:

This case showed a positive clinical response to the Ayurvedic treatment approach, which included *Deepana, Pachana,* and *Koshtashodhana*, followed by *Shamana Chikitsa* with *Kanchanar Guggulu* and *Hamsapadadi Kashaya*, along with *Pratimarsha Nasya* using *Shuddha Go-Ghrita*. Over the three-month treatment period, the patient's TSH decreased from 85 µIU/mL to 4.95 µIU/mL, along with improvement in hair fall, weakness, appetite, activity level, and overall well-being.

Patient perspective

The patient reported noticeable reduction in hair fall, increased energy, improved appetite and better overall well-being after treatment. She reported satisfaction with the intervention and was able to resume routine academic activities.

Declaration of patient consent:

The authors certify that written informed consent was obtained from the patient for publication of this case report and accompanying clinical information. The patient understood that personal identity would be kept confidential.

Follow up

3 months follow-up taken after completion of treatment, no medication was administered during follow-up as patient did not have any symptoms.

Conflict of interest: The author declares that there is no conflict of interest.

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