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Case Report

Ayurvedic Management of Thyroid Dysfunction with Suppressed TSH in a Pediatric Patient: A Case Report

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ABSTRACT

Background: Pediatric thyroid dysfunction presenting with suppressed Thyroid-Stimulating Hormone (TSH) along with decreased Free Triiodothyronine (FT3) and Free Thyroxine (FT4) is uncommon and poses diagnostic and therapeutic challenges. Ayurveda emphasizes correction of metabolic imbalance and restoration of tissue function through a holistic approach.

Objective: To evaluate the effect of Ayurvedic management in a pediatric patient with thyroid dysfunction presenting with a discordant thyroid profile.

Case Report: A 12-year-old male presented with generalized weakness, bilateral calf muscle pain, headache, and chronic constipation. Laboratory investigations revealed suppressed TSH (0.017 μ IU/mL), low FT3 (1.13 pg/mL), and low FT4 (<0.40 ng/dL). Based on Ayurvedic assessment, the condition was interpreted as *Dhatvagni Mandya* associated with *Rasa-Mamsa Dhatu Kshaya*. The patient was treated with *Shatavari Churna*, *Praval Pishti*, *Kushmanda Rasayana*, and *Goghrita* for 12 weeks.

Results: Marked clinical improvement was observed with resolution of weakness, headache, calf muscle pain, and constipation. Follow-up investigations demonstrated improvement in thyroid parameters, with TSH 1.61 μ IU/mL, Total T3 1.69 ng/mL, and Total T4 9.16 μ g/dL.

Conclusion: Ayurvedic management focused on Agni correction and Dhatu nourishment was associated with improvement in both clinical symptoms and biochemical parameters in this pediatric case. Further studies with larger sample sizes are required to validate these findings.

INTRODUCTION

Pediatric thyroid dysfunction is a complex endocrine disorder that profoundly impacts growth, metabolism, and neuromuscular development in children.^[1] While classical hypothyroidism or hyperthyroidism are well-documented, atypical presentations involving a discordant thyroid profile-such as decreased Free Triiodothyronine (FT3), decreased Free Thyroxine

(FT4), along with a suppressed Thyroid-Stimulating Hormone (TSH) [2] -present a unique diagnostic and therapeutic challenge. In children, non-specific constitutional symptoms like generalized weakness (debility), myalgia (muscle pain), headache, and chronic constipation often mask underlying transient thyroid dysfunction or nutritional deficiencies. Early and precise intervention is crucial to prevent long-term metabolic and developmental setbacks.

Conventional interventions in pediatric patients also carry risks of adverse effects, hormonal fluctuations, and compliance challenges. This creates a compelling clinical need for safe, holistic, and comprehensive alternative therapies

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that can restore endocrine homeostasis without causing systemic side effects.

Ayurveda approaches such endocrine and metabolic anomalies through the lens of *Dhatvagni Mandya* (impaired tissue metabolism) and *Rasa-Mamsa Dhatu Kshaya* (depletion of nutritional and muscular tissues). A combined presentation of weakness, severe calf muscle pain (myalgia), and constipation signifies a profound imbalance of *Vata* and *Pitta* Doshas affecting the *Annavaha* and *Mamsavaha Srotas* (channels of nutrition and muscle tissue).

Rather than merely altering hormone levels, Ayurvedic management focuses on *Dhatu Poshana* (nourishment of tissues) and *Balya* (strength-promoting) interventions.

- *Shatavari Churna* and *Kushmanda Rasayana* serve as potent *Rasayanas* (rejuvenators) that provide deep cellular nourishment, balance *Vata-Pitta*, and combat nutritional debility.
- *Praval Pishti* acts as a natural calcium source and a cooling agent to pacify aggravated *Pitta*, mitigating headaches and muscle cramps.
- *Goghrita* (cow's ghee) enhances bio-availability, lubricates the gastrointestinal tract to relieve constipation, and crosses cellular barriers to stabilize endocrine functions. This case report documents the successful Ayurvedic management of a 12-year-old male pediatric patient presenting with severe generalized weakness, bilateral calf muscle pain, headache, and chronic constipation associated with a unique thyroid profile (decreased FT3, FT4, and suppressed TSH) [3]. By utilizing a tailored regime of *Shatavari Churna*, *Praval Pishti*, *Goghrita*, and *Kushmanda Rasayana*, this study highlights the efficacy of Ayurvedic interventions in achieving complete symptomatic relief and the total normalization of biochemical thyroid parameters, presenting a viable framework for managing transient pediatric endocrine dysfunctions.

Case Report

A 12-year-old male pediatric patient accompanied by his guardians presented to the outpatient department with primary complaints of:

- Severe generalized weakness and easy fatigability for 3 months.
- Intermittent, dull aching headache for 2 months.

- Severe bilateral calf muscle pain (myalgia), causing difficulty in running and prolonged walking for 2 months.
- Chronic, hard-stool constipation (bowel frequency once in 2–3 days) for more than 4 months.

There was no prior history of chronic systemic infection, major trauma, or hereditary endocrinopathy.

Clinical Examination

On physical examination, the child appeared lethargic with mild pallor. No palpable thyroid enlargement (goitre), exophthalmos, or tremors were noted. [4]

- **Pulse Rate:** 74 bpm, regular
- **Blood Pressure:** 102/64 mmHg
- **Body Weight:** 34 kg
- *Ashta Sthana Pariksha* (Ayurvedic Diagnostic Examination) revealed *Mandagni* (low digestive fire), *Khara Nadi* (rough pulse indicative of *Vata*), and *Alpa-Rakta Jivha* (pale tongue). [5]

Diagnostic Assessment

Initial laboratory assessment through Dr Lal PathLabs highlighted a discordant thyroid profile:

- **Free Triiodothyronine:** 1.13 pg/mL (*Biological Reference Interval:* 2.56 – 5.01 pg/mL)
- **Free Thyroxine** :<0.40 ng/dL (*Biological Reference Interval:* 0.98 – 1.63 ng/dL)
- **TSH - Ultrasensitive:** 0.017 µIU/mL (*Biological Reference Interval:* 0.51 – 4.30 µIU/mL)

Mode of action of Drugs:

- ***Shatavari Churna* (2g BD with Milk):** *Shatavari* (*Asparagus racemosus*) is classically classified as a premier *Balya* (strength enhancer) and *Stanya/Shukra Janana* herb. It possesses *Snigdha* (unctuous) and *Guru* (heavy) attributes that directly counter the dry, erratic nature of *Vata*. Being a potent adaptogen, it modulates systemic stress and supports pituitary homeostasis, helping elevate the suppressed TSH back to physiological boundaries. [6]
- ***Praval Pishti* (250mg mixed with *Shatavari churna*)** acts as a natural calcium source and a cooling agent to pacify aggravated *Pitta*, mitigating headaches and muscle cramps. [7]

- **Kushmanda Rasayana (1/2 tsp BD with Water):** Prepared from *Benincasa hispida*, this traditional formulation acts as a deep *Rasayana* (rejuvenator) and *Medhya* (cognitive/neurological balancer). It stabilizes the hyperactive metabolic fire (*Teekshna Agni*), nourishes the *Rasa Dhatu*, and relieves the tension headaches by pacifying *Pitta Dosha*.^[8]
- **Goghrita (10ml OD with Meals (10:00 AM से 2:00 PM))**

Indigenous cow's ghee plays a dual role. Actively, it acts as a *Vata-Pitta Shamaka* agent that provides mandatory lubrication (*Anulomana*)^[9] to correct deep-seated constipation. Passively, lipids are crucial structural precursors for hormonal synthesis; *Goghrita* ensures adequate cellular nutrition and optimal delivery of lipid-soluble phytochemicals across cellular barriers to the endocrine receptors.

RESULTS

The patient showed highly encouraging results both clinically and biochemically over the course of the 12-week Ayurvedic intervention.

Clinical Progress

By the end of the therapeutic course, the patient's clinical symptoms showed substantial recovery:

- **Generalized Weakness & Fatigue:** Progressively resolved, allowing the child to resume regular school work and physical outdoor play.
- **Bilateral Calf Muscle Pain:** Completely relieved within the first 6 weeks of starting *Shatavari* and *Kushmanda Rasayana*.
- **Headache:** Episodes entirely ceased as the systemic *Pitta* manifestation subsided.
- **Bowel Habits:** Chronic constipation was fully managed, restoring regular, daily, and smooth bowel evacuation due to the lubricating (*Snehana*) action of *Goghrita*.
- **Body Weight:** Stable at 31.8 kg with improved muscle mass and general vitality.

2. Biochemical Assessment

A follow-up comprehensive blood examination was conducted at *Dr. Lal PathLabs* to evaluate changes in the endocrine markers. The comparative pre-treatment and post-treatment values show absolute normalization of the Hypothalamic-Pituitary-Thyroid (HPT) axis:

Biochemical Parameter	Pre-Treatment Value (05/03/2026)	Post-Treatment Value (14/05/2026)	Biological Reference Interval
TSH (Ultrasensitive)	0.017 μ IU/mL	1.61 μ IU/mL	0.51 – 4.30 μ IU/mL
Thyroid Hormones	FT3: 1.13 pg/mL FT4: <0.40 ng/dL	Total T3: 1.69 ng/mL (Normal) Total T4: 9.16 μ g/dL (Normal)	Total T3: 1.69 ng/mL (Normal) Total T4: 9.16 μ g/dL (Normal)

DISCUSSION

This case report presents an unusual pediatric endocrine profile where a severely suppressed TSH (0.017 μ IU/mL) coexisted with low peripheral thyroid hormones (FT3 and FT4). In conventional internal medicine, an isolated suppressed TSH is typically diagnosed as subclinical hyperthyroidism. However, the concurrent low levels of peripheral hormones in this 12-year-old child indicate a transient, discordant state of the HPT axis, heavily influenced by underlying constitutional debility, tissue depletion, and nutritional exhaustion.

From an Ayurvedic perspective, this clinical manifestation cannot be limited to a single organ like the thyroid gland. Instead, it is evaluated as a systemic derangement of *Dhatvagni* (tissue-level metabolic fire), particularly affecting the *Rasa*

(plasma) and *Mamsa* (muscle) *Dhatu*s. The clinical presentations recorded in the hospital OPD card provide clear diagnostic insights:

1. **Calf Muscle Pain (*Pindikodveshtana*):** This symptom directly represents *Mamsa Dhatu Kshaya* (depletion of muscle tissue) combined with *Vata Dosha* vitiation in the localized channels.
2. **Chronic Constipation (*Vibandha*):** Indicates *Rookshata* (excessive dryness) in the *Annavaha Srotas* due to decreased *Rasa Dhatu* and aggravated *Vata*.
3. **Headache & Weakness:** Points to an unmitigated *Pitta-Vata* axis causing metabolic depletion (*Ojas Kshaya*).

Mode of Action of the Ayurvedic Regimen:

- **Shatavari Churna (2g BD with Milk):** *Shatavari* (*Asparagus racemosus*) is classically classified as a premier *Balya* (strength enhancer) and *Stanya/Shukra Janana* herb.^[10] It possesses *Snigdha* (unctuous) and *Guru* (heavy) attributes that directly counter the dry, erratic nature of *Vata*.^[11] Being a potent adaptogen, it modulates systemic stress and supports pituitary homeostasis, helping elevate the suppressed TSH back to physiological boundaries.^[12]
- **Praval Pishti (250 mg mixed with Shatavari Churna)** was administered as a *Pittashamaka* and *Balya* formulation. Owing to its *Sheeta* Virya and calcium-rich composition, it may help alleviate symptoms associated with aggravated Pitta such as irritability, palpitation, and excessive metabolic activity, while supporting bone health and overall growth in pediatric patients
- **Kushmanda Rasayana (1/2 tsp BD with Water):** Prepared from *Benincasa hispida*, this traditional formulation acts as a deep *Rasayana* (rejuvenator) and *Medhya* (cognitive/neurological balancer). It stabilizes the hyperactive metabolic fire (*Teekshna Agni*), nourishes the *Rasa Dhatu*, and relieves the tension headaches by pacifying *Pitta Dosha*.^[13]
- **Goghrita (10ml OD with Meals):** Indigenous cow's ghee plays a dual role. Actively, it acts as a *Vata-Pitta Shamaka* agent that provides mandatory lubrication (*Anulomana*) to correct deep-seated constipation. Passively, lipids are crucial structural precursors for hormonal synthesis; *Goghrita* ensures adequate cellular nutrition and optimal delivery of lipid-soluble phytochemicals across cellular barriers to the endocrine receptors.^[14]

The therapeutic synergy of these drugs successfully managed the tissue metabolism (*Dhatvagni Mandya*), naturally guiding the pituitary gland to resume regular TSH secretion while stabilizing peripheral T3 and T4 values without requiring lifelong artificial hormonal supplements.^[15]

CONCLUSION

This case report demonstrates that pediatric transient thyroid dysfunction with a suppressed TSH profile can be managed successfully and safely through customized

Ayurvedic principles. By focusing therapy on nourishing depleted tissues (*Dhatu Poshana*), balancing *Vata-Pitta* anomalies, and regulating underlying metabolic mechanisms (*Agni*), complete clinical and biochemical resolution was attained within 12 weeks. This non-hormonal, multi-targeted holistic approach offers a reliable, safe alternative for managing pediatric endocrine variances, minimizing the risks of permanent glandular dependency in growing children.

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