Case Report

Role of Ayurveda Interventions in the Management of Primary Hypothyroidism - A Case Report

ABSTRACT

Hypothyroidism is a condition that lacks the release of thyroid hormone causing the opposition of the bodily tissues to the thyroid hormone in the view of metabolic demand. In Ayurveda, there is no exact linking term for hypothyroidism. The physiology and pathogenesis of oxidation and metabolism in each and every tissue of the body are served as chief functions by *Agni* (~a system concerned with digestion and metabolism) and *Pittadosha* (~a bodily humor). With the support of principles of *Anukta Vyadhi* (~unstated diseases) of Ayurveda, hypothyroidism can be diagnosed as *Agni dushitajanya Rasapradoshaja vyadhi* associated either with *Vata, Pitta* or *Kapha dosha*. The Ayurvedic management of hypothyroidism is to address the pathology at its root by regulating the affected immune system. A 25-year-old female student, who was a known case of hypothyroidism with polycystic ovarian syndrome (PCOS) since nearly 2 years, was successfully treated using the above principle. Her thyroid stimulating hormone (TSH) before the intervention was 6.12 μIU/ml. She was subjected to *Langhana chikitsa* (~depleting therapy) to correct her alleviated *Pitta* and *Kapha Dosha*. This *chikitsa* involved induction of *Deepana-Pachana* (~enhancers of digestion and metabolism), *Snehapana* (~therapeutic intake of medicated unctuous substance), and *Vamana chikitsa* (~therapeutic emesis). She attained 8 *Vegas* (~bouts) and was discharged with suitable *Samshamana oushadhis* (~palliative or discharge medications) and *Samsarjana karma* (~Post therapy dietetic regimen for revival). After completing 1 month of follow-up she is currently asymptomatic and her TSH level is 3.73 μIU/ml. The adoption of various classical principles of Ayurveda in diagnosing the case, the minimal intervention used and the significant results obtained motivated us to document the case. Although the present testimony is of a small sample, a plan on a large sampled pilot study on the current treatment model is intended.

Key words: *Anukta Vyadhi,* hypothyroidism, Langhana chikitsa, Rasadhatu pradoshaja vyadhi, Vamana chikitsa

Introduction

The chief function of the thyroid gland is to initiate the maintenance of oxidative metabolism in the tissues of the whole body that is required for the normal functioning of each and every tissues of the body. Hypothyroidism in contemporary science is a condition that lacks the release of thyroid hormone causing the resistance of the bodily tissues to the thyroid hormone with respect to metabolic demand.[1] It is characterized by a wide clinical series ranging from an overt state of myxedema, end-organ effects, and multisystem

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failure from an asymptomatic to a subclinical and severe condition.[2] In Ayurveda, there is no exact linking term for hypothyroidism. The initiation and the maintenance of oxidation and metabolism in each and every tissue of the body are served as chief functions by *Agni* (~a system concerned with digestion and metabolism).[3] One can understand the pathogenesis of hypothyroidism, through the role of *Agni dusti* and its manifestation. Hence, the action of the thyroid gland and its hormones are equivalent to the role of *Agni*. The impaired metabolism and autoimmune response found in hypothyroidism can be compared with *Agni*and *Pitta dusti*.[4] The clinical features and the pathogenesis of hypothyroidism are considered in terms of different views caused due to impairment of *Agni*associated with vitiation of *Dosha* and *Srotas*.[5] With the help of the principles of *Anukta Vyadhi* (~unstated diseases),[6] hypothyroidism can be diagnosed as *Agni dushitajanyaRasadhatupradoshajavyadhi.* Based on signs and symptoms, it can be associated either with *Vataja, Pittaja,* or *Kaphaja* or in combination. The objective of the Ayurvedic management of hypothyroidism is to address the pathology at its root by regulating the immune system and decreasing the *Dushya* (~vitiation). This whole line of treatment can be termed under *Srotoshodana* (~cleansing of the micro and macro channels), *Agnideepana-Pachana* (~stimulation of the digestion and metabolism), and *Vatanulomana* (~proper regulation of vitiated *Vatadosha* through excretion).[1]

Case Report

Patient information

A 25-year-old female, a student approached the outpatient department of *Kayachikitsa* on September 06, 2022, as a diagnosed case of "hypothyroidism with PCOS" for nearly 2 years and was not on any standard thyroid drugs. Before 2 years, she was said to be healthy and not suffered from any major illness. None of the family members suffered from thyroid-related illness. She had undergone *Virechana chikitsa* (~therapeutic purgation) elsewhere 1 year back and was on thyroid supplements after that for 6 months. Since the past 6 months, she was not on any medications and during this period, she had gradually gained weight along with irregular menstrual cycles (3–4 days once in 2 months). Along with these chief complaints she had associated complaints of hair fall, easy fatigability (non-exertional), lack of interest in food and impaired digestion. Consequently, through a reference, she approached our hospital for management through Ayurveda. We diagnosed the patient as "*Agni dushitajanya rasa dhatu pradoshaja vyadhi* of *Pittaja* and *kaphaja* type."

Clinical findings

On examining, she was young, conscious, oriented, and cooperative. Her vitals were stable and the systemic and local examination seemed to be clinically normal. She had a weight of 63 kg and BMI of 24.6. Except her thyroid profile, rest of her routine blood and urine reports appeared to be in the normal range. Her thyroid stimulating hormone (TSH) on September 6, 2022, was 6.12 μIU/ml.

Timeline

The initial treatment was started on September 06, 2022, and was meant for *Deepana pachana* (~enhancers of digestion and metabolism). From September 07, 2022, to September 10, 2022, *Snehapana* (~therapeutic intake of medicated unctuous substance) was induced. On September 10, 2022, the patient attained *Samyak Snehana Lakshana* (~signs of optimal oleation therapy), and hence *Snehapana* was stopped. On September 11, 2022 and September 12, 2022, the patient was subjected to *Sarvanga Abhyanga* with *Avagaha Sveda* (~therapeutic massage with sudation by sitting in tub) and *Vamana chikitsa* (~therapeutic emesis), respectively. Patient attained eight *Vega* (~bout), i.e., *Pravara Shuddi* (~optimal cleansing) with *Pittanta* (~bilous end product). She withstood the whole treatment uneventfully without any adverse effects. At the time of discharge, her symptoms were comparatively reduced. She was discharged on September 13, 2022 with discharge medications [as plotted in the Table 1] and advice on strict *Samsarjana karma* (~Post therapy dietetic regimen for revival) for 7 days. The details of *Samsarjana Karma* are briefed in Table 2. She was advised to follow up after 1 month.

Therapeutic intervention

The whole treatment schedule was based on the adoption of classical *Langhana Chikitsa* (~depleting therapy) with respect

Table 1: *Samshamana oushadis* ordered at the time of discharge

Prescription	Schedule
Tablet Hyponidd	1 tab early morning on empty stomach
Sahacharadi kashaya	2 teaspoon TID BF
Avipattikara churna	2 teaspoon with 1 cup of warm water at bedtime

TID - Thrice a day, BF - Before food

Table 2: Details of *Samsarjana karma*

Day	Morning	After noon	Night
1	-	-	Peya
2	Peya	Peya	Vilepi
3	Vilepi	Vilepi	Akritha yusha
4	Akritha yusha	Akritha yusha	Kritha yusha
5	Kritha yusha	Kritha yusha	Akritha mamsa rasa
6	Akritha mamsa rasa	Akritha mamsa rasa	Kritha mamsa rasa
7	Kritha mamsa rasa	Kritha mamsa rasa	Prakruthabhojana

Peya - Thin rice gruel with Saindhava lavana, Vilepi - Thick rice gruel with Saindhava lavana and Jeeraka powder, Akritha yusha - Rice with green gram along with Saindhava lavana, pinch of turmeric, Jeeraka powder and pepper, Kritha yusha - Seasoning of Akritha yusha with ghee, Akritha Mamsa Rasa - Rice along with goat meat soup, Saindhava lavana, turmeric, jeeraka powder and pepper, Kritha mamsa rasa - Seasoning of Akritha mamsa rasa with ghee, Prakruthabhojana - Rice and rasam or dal

to *Vamanachikitsa*. The whole treatment schedule adopted in the present case is listed in Table 3 and its description is stated in the above timeline section. The assessment of *Vamana Chikitsa* implemented in the present case is described in Table 4. The patient attained eight *Vega* that is *Pravara Shuddi* with *Pittanta*.

Diagnosis assessment

The laboratory assessment of thyroid function was set as standard for our diagnosis evaluation before and after intervention. Her TSH on September 6, 2022, or before the commencement of the intervention was 6.12 µIU/ml. After the intervention, i.e., on December 16, 2022, her TSH was repeated and it resulted with a normal value of 3.73 µIU/ml.

Follow-up and outcome

At the time of discharge, her weight was 61.45 kg and was discharged with oral medications [Table 1] and was advised to follow strict dietary items, activities, and behavioral regimens that were wholesome to her body. She was advised a periodical follow-ups of 1 month, with the intention of monitoring her signs and symptoms. We had planned to recheck her level of TSH every 3 months once. Currently, she is on her first follow-up and is asymptomatic.

Discussion

Weighing 15–20 g in an average adult human, the thyroid gland is located in front of the neck above the trachea. The gland produces and stores the thyroxine (T4) and triiodothyronine (T3) hormones in the thyroglobulin protein and releases these hormones into the body circulation. The gland and its hormones control the basal metabolic processes and improve the oxygen consumption in all the body tissues. The hormones also influence the linear growth, brain functions, neural and bone development.[7] The TSH is secreted by the thyrotroph cells located in the anterior pituitary gland. It regulates the thyroid gland function, its hormone, its synthesis and release. The thyrotrophin-releasing hormone (TRH) that is produced in the hypothalamus influences on the pituitary secretion of TSH. Thus, the secretion of both TSH and TRH is regulated by the negative feedback from the thyroid hormone predominantly by T3 from the circulation that is produced locally from the intracellular conversion of T4 to T3. Thus, the serum concentration of free T4 and free T3 are decreased in hypothyroidism and elevated in hyperthyroidism.[7]

In hypothyroidism, the medical management includes thyroid hormone replacement therapy (levothyroxine) and desiccated animal thyroid preparations (thyroid extracts and liothyronine), where the latter is less practiced. The dosage adjustment of levothyroxine is monitored based on TSH levels. During emergency management, levothyroxine is administered intravenously or through the nasogastric route. Emergency surgery is conducted in patients with medically untreated hypothyroidism.[8]

As per Ayurveda insights, in general, the normalcy in vision, appetite, thermal system, complexion, nourishment, intellectual, and other mental functions are maintained by *Pittadosha*.[9] *Pitta dosha* is considered to be responsible for overall digestion and metabolism in the body with a predominance of *Tejas*or *Agni mahabhuta* (~elements of fire).[10] Hence, under some circumstances, *Pitta* and *Agni* are identical to each other. Specifically, each of the bodily

Table 3: Treatment schedule of the Ayurveda intervention

Prescription orders	Schedule						
	September 06, 2022	September 07, 2022	September 08, 2022	September 09, 2022	September 10, 2022	September 11, 2022	September 12, 2022
Tablet Chitrakadi Vati	1 tab TID BF	-	-	-	-	-	-
Jeerakadi/Shunti Kashaya	20 mL TID BF						
Snehapana with Panchatikta Guggulugritha	-	30 mL	60 mL	90 mL	110 mL	-	-
Tablet Anuloma DS	1 tab at bedtime	1 tab at bedtime	1 tab at bedtime	1 tab at bedtime	1 tab at bedtime	-	-
Sarvanga Abhyanga* with Avagahasveda	-	-	-	-	-	Morning	Morning
Vamanachikitsa	-	-	-	-	-	-	Morning

**Sarvanga Abhyanga* with Mahamashataila and Brihatsaindavaditaila. TID - Thrice a day, BF - Before food

Table 4: Details of assessment of *Vamana chikitsa*

Vamana dravya	Quantity	Timing	Observation
Milk	2.5 L	5:15 AM	-
Madana Pippali with Honey	10 g and quantity sufficient	5:25 AM	Horripilation, sweating over forehead, abdominal distention, excessive salivation
Yasthimadhu phanta	4 liters	6:00 AM	-
Saindhava jala	1 liter	6:20 AM	-

tissues or *Dhatu* (~ major structural components of the body) derives its nourishment and gets metabolized through a specialized format of *Agni* called *Dhatvagni*. These whole functions as a system are primarily monitored and supported by *Tejas* or *Agni mahabhuta*.[11] The bioenergy (*Agni*) present in each of the *Dhatu,* amalgamates and alters the essential *Rasa* (~nourishing factor formed through *Rasa dhatu*) from the basic nutrients or the essence in the food we consume, thus completing the process of "metabolism" at the tissue level.[12] Any abnormality due to various *Nidana* (~etiology) in this whole system indicates the unbalanced metabolic activity in the human body that can be credited to the vitiation of *Agni*.[9]

As per the Ayurveda principle, it is believed that this form of physiological metabolism and nourishment is sequentially followed in each of seven *Dhatu*. Pathologically stating, the malfunctioning also follows the same order. If not addressed primarily, the pathogenesis progresses and circulates through *Srotas* (~channels), getting deeper into the *Dosha* and further vitiating the whole body.[13] As we lack an exact correlation of hypothyroidism in Ayurveda, with the help of principles of *Anukta Vyadhi* (~unstated diseases),[6] hypothyroidism can be diagnosed as *Agni dushitajanya Rasadhatu Pradoshaja Vyadhi.* Based on signs and symptoms, it can be associated either with *Vataja, Pittaja,* or *Kaphaja* or in combination. In the present case, it was Pittaja and kaphaja type. The patient was symptomatically stating her abnormality through indigestion, heaviness of the body, and lethargy. The complaints of hair loss might be due to *Agnidusti*, due to improper formation of *Rasa dhathu* causing the depletion in the nourishment of *Asthidhatu* resulting in hair loss.[14] The irregularity in a menstrual cycle might also be due to the impairment in the *Rasadhatu*. This impairment might have resulted in *Asthayi Avastha* (~unstable state) or insufficient nourishment to the *Upadhatu* of *Rasa dhatu (Sthanya* and *Artava*) and *Raktadhatu*. This insufficiency or instability might have disturbed her *Artava Pravrutti* (~menstruation).[15] The overall pathophysiology of *Agni dushitajanya Rasadhatu pradoshaja vyadhi* compared with hypothyroidism of the present case is shown in the flowchart of Figure 1.

Langhana chikitsa (~depleting therapy) is considered the line of treatment for *Rasadhatu Pradoshaja Vikaras* (~disorders progressed due to vitiation of *Rasa dhatu*).[16] The treatment principle adopted in the present case can be divided into two types of *Langhana*.[17] The first *Samshodhana* (~major purification) therapy was aimed at the cleansing of the macro and micro channels and was attained by *Vamana Chikitsa*. The emesis therapy is considered best for the forcible evacuation of vitiated *Kapha* and *Pitta* through the oral route.[18] Significantly *Sarvanga abhyanaga* and *Bashpa sweda* with Mahamasha taila and Brihatsaindavadi taila which was used as *Purvakarma* (~preparatory procedure) to *Vamana chikitsa* might have facilitated the *Shodhana karma* by the action of *Srotoshodhana*, *Agni deepana*, *Dhatu pushti* (~nourishment of *Dhatu*) and *Kapha-Vata hara* (~antagonistic property tovitiated *Kapha* and *Vata*). The *Vamana* by *Madanaphaladi yoga* with

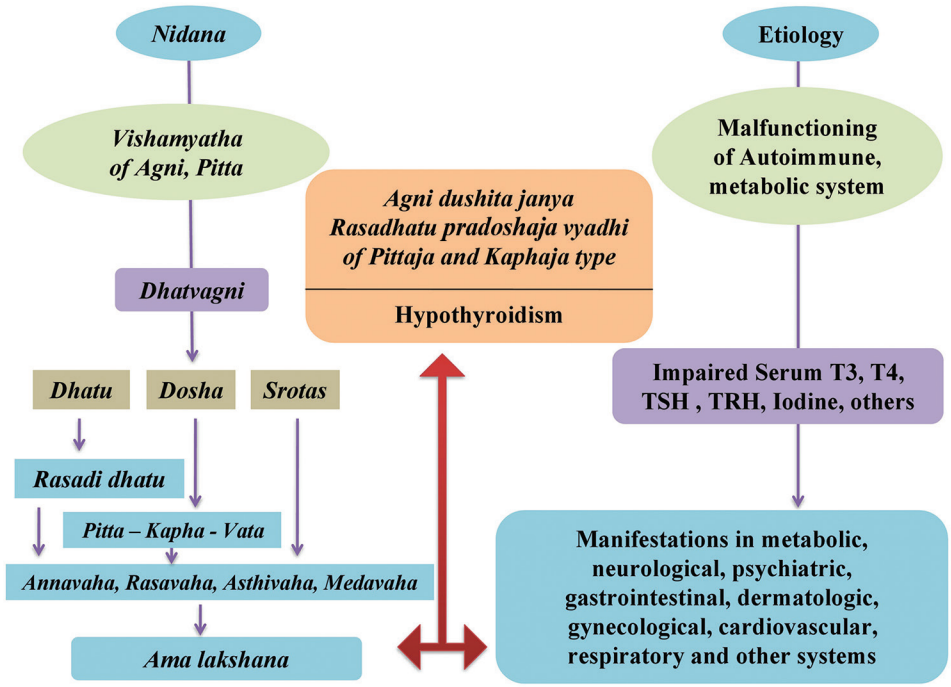

Figure 1: Comparative flowchart of probable pathophysiology of *Agni dushitajanya Rasadhatu pradoshaja vyadhi* and hypothyroidism

Table 5: Details of *Samshamana* treatment principle

Prescription	Contents	Probable mode of action
Tablet hyponidd	*Yashada bhasma, Shuddha shilajathu, C. auriculata, E. officinalis, C. longa, E. jambolana, Enicostemma littorale, G. sylvestre,* M. azedarach, *P. marsupium, T. cordifolia, S. chirata*	*Kapha* and *Medho hara* by the action of *Srotoshodana*
Sahacharadi kashaya	*B. prionitis, C. deodara, Z. officinale*	*Agni deepana* and *Pachana*. Helps in the proper nourishment of *Dhatus* and hence restore its normal functional ability
Avipattikara churna	*Z. officinale, P. nigrum, P. longum, T. chebula, T. bellirica, E. officinalis, C. rotundus, E. ribes, E. cardamomum, C. tamala, S. aromaticum, Ipomoea turpethum, Vida lavana and Sharkara*	*Vathanulomana* and Improves Agni

C. auriculata - Cassia auriculata, E. officinalis - Emblica officinalis, C. longa - Curcuma longa, E. jambolana - Eugenia jambolana, G. sylvestre - Gymnema sylvestre, M. azedarach - Melia azedarach, P. marsupium - Pterocarpus marsupium, T. cordifolia - Tinospora cordifolia, S. chirata - Swertia chirata, B. prionitis - Barleria prionitis, C. deodara - Cedrus deodara, Z. officinale - Zingiber officinale, P. nigrum - Piper nigrum, P. longum - Piper longum, T. chebula - Terminalia chebula, C. rotundus - Cyperus rotundus, E. ribes - Embelia ribes, E. cardamomum - Elettaria cardamomum, C. tamala - Cinnamomum tamala, S. aromaticum - Syzygium aromaticum, T. bellirica - Terminalia bellirica

the *Vega* of eight might have helped in expelling out the maximum *Dosha* and *Dushya* through the oral orifice. The second type of *Langhana* was *Samshamana* therapy. It aimed to stimulate the function of digestion and metabolism of *Agni*, and proper regulation of *Vata* and *Kapha* through the excretory system. This goal was attained by the *Samshamana oushadhis* and a strict *Samsarjana karma*. The line of treatment and the *Samshamana* therapy might have played their role in the correction and restoration of *Agni*. It might have also helped in regulating the vitiated *Pitta dosha* and *Rasa dhatu*. The details of various patent and generic drugs of Ayurveda adopted as *Samashamana* treatment principal, its contents, probable mode of action, and its role in the present case are described in Table 5. At the time of discharge and on her first follow-up, she had no complaints. She reported with a feel of lightness in the body, optimal appetite and complete evacuation of excretions. This state can be considered as benefits of *Langhana* therapy.

Conclusion

As per *Anuktavyadhi* concept of Ayurveda, hypothyroidism can be related to *Agni Dushitajanya Rasadhatu Pradoshaja Vyadhi* associated with *Vata, Pitta,* or *Kapha dosha*. The elevated TSH level in hypothyroidism can be brought down by using the depleting therapy and can be further better managed through palliative therapy of *Ayurveda*. As the present case is a single case study, there is a need to study the current design in the larger population for evidence-based research and as a contribution of ancient science toward human health.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given her consent for her images and other clinical information to be reported in the journal. The patient understands that name and initials will not be published and due efforts will be made to conceal identity, but anonymity cannot be guaranteed.

Acknowledgment

The author has obtained the permission through consent forms from the patient and her parents, regarding their approval for reporting the case along with the images and other clinical information in any medical journal. The patient is aware of that either her name or initials will not be published and due efforts will be made to conceal her identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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