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Case Report

Subclinical Hypothyroidism

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Efficacy of Single Drug Therapy in the management of Subclinical Hypothyroidism: A Case Series analysis using Ayurvedic approach

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Subclinical hypothyroidism (SCH) is characterized by elevated thyroid-stimulating hormone (TSH) levels with normal free thyroxine (T4) levels. Herbal formulations used in Ayurvedic medicine offer a comprehensive strategy that may be beneficial to controlling symptoms than conventional treatment, which usually concentrate on hormone replacement. This case series aims to determine the effectiveness of single drug therapy in treating Subclinical Hypothyroidism, with a focus toward evaluating biochemical markers and clinical outcomes which is need of the hour. A total of 8 patients diagnosed with subclinical hypothyroidism were treated with Shigru Patra Churna tablet over 42 days. Patient information was gathered both before and after treatment, including symptoms, TSH levels, and measures of quality of life. Preliminary findings suggest that patients experienced symptomatic relief along with normalization of thyroid function test (TFT) results. The use of Shigru led to notable improvements in clinical symptoms, with TSH levels returning to normal in 7 out of 8 cases. This case series offers encouraging evidence that single drug therapy in Ayurveda can serve as an effective treatment for subclinical hypothyroidism. Additional studies with larger sample sizes and controlled designs are needed to confirm these results and better understand the underlying mechanisms.

Keywords: Subclinical hypothyroidism, Ayurveda, single drug therapy, moringa oleifera, herbal medicine, case series

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Introduction

Subclinical hypothyroidism (SCH) is a disorder characterized by biochemical diagnosis with normal T3 and T4 but increased TSH levels with particular cardinal symptoms.**[1]** Globally, 3% to 8% of the world population is affected by Subclinical hypothyroidism. It affects 2.4% to 3% male and 6% to 10% females worldwide.**[2]** The prevalence is found to be high in women as compared to males and it increases with age.**[3]** Most of the time, the condition Subclinical hypothyroidism is found to be asymptomatic.**[4]** but can present with symptoms associated with hypothyroidism like weight gain, dry skin, hair loss, loss of appetite, muscular weakness, irregular periods, fatigue, cold intolerance, etc.**[5,6]** Treatment for SCH if TSH levels >10 mIU/L, recommended by American Thyroid Association (ATA) & American Association of Clinical Endocrinology (AACE) is to begin with levothyroxine therapy.**[6]** In *Ayurveda*, there is no direct correlation of SCH, but it can be correlated to *Rasa Pradoshaja Vikara***[7]**, *Kaphavrita-Udanavata***[8]**, based on clinical manifestations. The *Nidana* of *Rasa Pradoshaja* are intake of *Atiguru Ahara, Atisnigdha Ahara*, and *Atimatra Ahara* which leads to impairment in *Agni*, which further hampers the production of *rasa*.[9] Overtime, this vitiation impairs the quality of rasa dhatu, ultimately disrupting balance of *sapta dhatus*. The treatment includes *Nidanaparivarjana, langhana, shodana chikitsa, shamana chikitsa*.

This case series includes 8 cases of Subclinical Hypothyroidism which was well managed with Ayurvedic intervention in terms of *Shamana Aushadhis*. This intervention was continued for a period of 42 days. The pre and post assessment was based on parameters like weight, BMI, waist circumference and hematological test i.e. Thyroid Function Test (TFT).

Case Series

Patients approaching Thyroid Specialty OPD of our hospital were screened for symptoms of Hypothyroidism, there were total 8 cases of all genders and mid aged group of Subclinical Hypothyroidism, some were pre-diagnosed and some were diagnosed by clinical symptomatically as well as heamatologically. There were number of cases attending OPD for Thyroid related problems,

But typically only 8 cases were selected as they were freshly diagnosed and without pre-existing diseases like DM, HTN etc. and they were ready to take single drug for their existing condition. Proper information of above Ayurvedic approach was explained to all the patients. Consent was taken from all the patients who were willing to be the part of study. Patient information is showed in the following table. (Table 1)

Table 1: Shows Age, Gender, TSH, Weight, waist circumference of patient before study.

Patient ID	1	2	3	4	5	6	7	8
Age	24	44	35	36	54	48	48	20
Gender	Female	Male	Male	Female	Female	Male	Female	Female
TSH value	5.98	14.7	9.77	5.73	6.35	6.98	6.99	18.2
Weight	59.7 kg	87 kg	57 kg	55 kg	57 kg	67 kg	76 kg	54 kg
Waist circumference	32 inch	41.5 inch	37.5 inch	34 inch	36 inch	36 inch	38 inch	31 inch

Clinical Findings

Diagnosis of Thyroid diseases in early stage is very much important as it may evolve to overt clinical Thyroidism or into complicated stage. Preliminary diagnosis of thyroid disorders start with the case taking by asking signs and symptoms of thyroidism to the patients. If patient is fitting into the diagnosis of thyroidism then Thyroid profile test is to be done for final diagnosis.

Reading Thyroid Profile Test

It contains Thyroid stimulating hormone (TSH), Triiodothyronine (T3), Thyroxine (T4).

- TSH - Normal range (0.4 - 4.0 mIU/L), though exact range may depending on the lab which method they are using. High TSH levels indicate Hypothyroidism where low TSH indicate Hyperthyroidism.
- T3 - Normal range (100 - 200 ng/dL), High T3 levels suggests hyperthyroidism, where low T3 shows Hypothyroidism.
- T4 - Normal range (4.5 - 11.2 µg/dL), High T4 levels indicative of Hyperthyroidism, and low T4 shows hypothyroidism.

There will be elevated TSH but normal T3 & T4 in Subclinical Hypothyroidism.

Materials and Methods

The patients presented with features suggestive of Hypothyroidism were examined;

Clinical diagnosis was made & then confirmed with help of Hematological investigation such as Thyroid profile test (TFT). After confirmation, patients with increased TSH value but normal values of T3 & T4 were considered for this case series. Demographic profile, associated symptoms such as weight gain, fatigue, dry skin & hairs, menorrhagia, weight gain, hoarseness of voice, periorbital oedema, brady-cardia etc . if presented were taken into consid-eration for inclusion in this case series. Patients were informed of objective and effects of their medicine. Patients who accepted to take medicine were prescribed treatment. Intervention period was of 42 days. Outcomes were also analyzed. Mainly *Kapha Dosha* and *Rasa Dhatu* are involved in pathogenesis of Hypothyroidism disease. *Sheeta Guna* (~cold character) of *Kapha Dosha* is found to be increased in these cases. Hence *Kaphahara* (~kapha reducing), *Ushna Virya* (~hot potency) medicines are required. For this case *Shigru* (*Moringa oleifera* Linn.) *Patra Churna* (~powder of leaves) tablet was prepared and used for this case series. *Shigru Patra* is explained as '*Medo* (~fat of body)*, Apachi* (~enlargement of gland of neck)*, Gulma* (~lump in body)*, Ganda* (~enlargement of thyroid gland)*, Vrana* (~wound), *Hareta* (conquer)' in Bhavaprakasha Nighantu. That is why *Shigru Patra Churna* is selected for this case series.

Table 2: Shows *Samprapti Ghataka* of disease

Samprapti Ghataka	
Dosha	Kapha
Dushya	Rasa, Meda
Agni	Dhatwagni
Ama	Jatharagnimandhya
Srotas	Rasavaha Srotas, Annavaha, Medovaha
Sroto Dusti	Sanga
Udbhava Sthana	Amashaya
Vyakta Sthana	Sarva Shareera
Adhisthana	Sarva Shareera
Rogamarga	Bahya, Abhyantara, Madhyama

Study Design

Table 3: Showing symptoms of patients before intervention.

Symptoms	1	2	3	4	5	6	7	8
Lethargy	+	+	-	-	+	+	+	+
Weakness	+	+	+	-	+	-	-	+
Sleepiness	+	-	+	-	-	-	-	-
Weight gain	-	+	-	+	+	-	+	-
Hair fall	-	-	-	-	+	+	+	+

Shigru Patra Churna tablet (500 mg each) two tablets were prescribed to take orally before meal for the duration of 42 days to 8 patients.

Results

Thyroid profile test was the diagnostic tool which was used for Confirmatory Diagnosis along with clinical diagnosis with help of signs and symptoms. except one patient all the patients reported TFT within normal values. Clinically patients got improvement in most of the Thyroidism complaints. During follow-up of the patients after 1 month; no recurrence was reported clinically.

Table 4: Showing symptoms of patients after intervention

Symptoms	1	2	3	4	5	6	7	8
Lethargy	N	N	-	-	N	N	N	+
Weakness	+	N	+	-	+	-	-	+
Sleepiness	N	-	N	-	-	-	-	-
Weight gain	-	+	-	N	N	-	N	-
Hairfall	-	-	-	-	+	+	+	+

Table 5: Shows changes in TSH value, Weight and waist circumference of patient after intervention

Patient ID	1	2	3	4	5	6	7	8
TSH value	3.05	3.560	3.05	2.87	4.12	4.98	4.33	18.2
Weight	57.5 kg	84 kg	55 kg	55 kg	53 kg	64 kg	71 kg	51 kg
Waist circumference	34 inch	38.5 inch	36 inch	34 inch	36 inch	35 inch	37 inch	31 inch

Patient with no change in symptoms as well as in TSH value was further advised to check her Anti-TPO it revealed that she had Auto-immune Thyroiditis.

Discussion

A prevalent chronic thyroid gland illness is called hypothyroidism. It is characterized by lack of thyroid hormones, specifically tri-iodothyronine (T3) and thyroxine (T4), which predominantly impact energy metabolism. Numerous conditions, including obesity, neurological symptoms, cardiovascular disease, type-2 diabetes mellitus, and infertility, are linked to hypothyroidism. Although term 'Hypothy-roidism' is not described in Ayurvedic *Samhitas*, condition might be mostly associated with activity of *Agni*. Ayurvedic texts have described thirteen types of *Agni*, with most fundamental being *Jatharagni* (~digestive fire present in abdomen). Their equil-ibrium is contingent upon both *Ahara* & *Vihara*.**[10]**

As was evident in the above instances, habitual eating of *Guru*, *Madhur* (~sweet), *Sheet*, and *Drava Ahara* (~liquid food article) along with inactivity or less activity, lack of exercise, *Shodhana* etc. Due to this *Kapha Dosha* will get vitiated and causes *Agnimandya*, which leads to formation of *Ama*, and *Dhatwagni Mandyata*, resulting into *Rasadhatu Vikruti*.

Chikitsa (~treatment) for such diseases should focus on *Agni*, which corrects *Dhatwagni Mandhya* and *Jatharagni*. It is necessary for the implementation of *Srotorodha* (~blockage of channels), *Kapha-Vata Shaman*, and *Medohara* (~reducing fat) line of treatment.

Shigru Patra has *Katu, Tikta Rasa, Ushna Virya, Katu Vipaka* and *Kapha-Vata Hara Karma;* which will help for *Agni Deepana* and *Shoshana* when administration done on empty stomach. The word *Shigru* itself says '*Shinoti Taikshnyat Shigru*' which means drug which possess *Tikshnata*. One more synonym is *Mochaka* which says '*Munchati Rogat Mochak*' means which eradicates all diseases.

Katu Rasa has '*Sneha-Meda-Kleda Shoshana' Guna***[11]** which is helpful in such cases where in obesity due to Hypothyroidism there will be accumulation of excessive subcutaneous fat is seen. Also *Shigru* acts as *Apatarpanakara* due to it's *Ruksha*, *Ushna* and *Laghu Guna. Katu Rasa* also does *Srotomukha Shodhana* which is very much useful in such cases.

Glucosinolate, quercetin & glucomoringin are some of the phytochemicals present in Moringa leaf which has anti-inflammatory property. Kaempferol is one more phytochemical which is strong antioxidant which helps in regulation of oxidative stress, which is one of the factor for progression of mild to severe form.**[12]**

Conclusion

This case series emphasizes the promise of single drug therapy in Ayurveda, particularly the application of *Shigru*, as an effective strategy for addressing subclinical hypothyroidism. The results indicate notable clinical improvements and normalization of thyroid function tests in most patients. Considering the holistic nature of Ayurveda, this approach may serve as a complementary treatment alongside traditional therapy.

To enhance the credibility of these findings, it is crucial to conduct further research with larger sample sizes and more robust study designs. Such studies will help confirm these initial results and provide greater insights into how Ayurvedic treatments influence thyroid health. *Shigru Patra* can be considered as one of the promising drug in treatment of Hypothyroidism.

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