



Case Report

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Ayurveda management of Iatrogenic Hypothyroidism: A Case Study

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Abstract

Introduction: Iatrogenic Hypothyroidism is permanent condition, once evoked by treatment resulting in permanent thyroid damage, or reversible, when caused by the treatment which interfere the thyroid function. Nowadays Radioactive iodine therapy is more preferably introduced for the treatment of Hyperthyroidism. It has proved to be effective, inexpensive and convenient for patients and wide thought as a treatment of choice. It destroys the cells within the thyroid gland that typically leads to hypothyroidism. In contemporary medicine still the management of Hypothyroidism remains unsatisfactory. Excessive hormonal replacement therapy carries potential to long term complications. Hence the present case study was taken to evaluate the efficacy of *Shodhana therapy (Virechana karma)* in the management of Iatrogenic hypothyroidism. **Material and method:** In a present case study a 30-year-old male patient diagnosed as a case of Iatrogenic hypothyroidism managed through *Shodhana therapy (Virechana Karma)*. Assessment was made on the basis of change in TSH and T4 level along with relief in subjective parameter after the *Shodhana therapy (Virechana Karma)*. **Result:** There was significant relief in weight gain (Reduced from 60 kg to 56 kg), BMI (25.9 to 24.2 kg/m²), Reduction in Hair fall from average 12.4 to 10.0 (Assessed by the hair comb test), disturbance in sleep (Pittsburgh Sleep Quality Index changes 13 to 5) and TSH level (27.64 to 4.2 uIU/ml). **Conclusion:** The observation made from this study suggests that *Shodhana therapy* along with *Udwartana* and *Takradhara* can provide an efficient result for managing Iatrogenic Hypothyroidism.

Keywords: Radioactive Iodine, Hyperthyroidism, Hypothyroidism, *Virechana Karma*.

INTRODUCTION

Hypothyroidism refers to common condition in which the thyroid gland fails to produce or secrete sufficient amounts of thyroid hormone [1]. An insufficient supply of hormone will disrupt cellular metabolism throughout the body resulting in organ and tissue damage. The prevalence of hypothyroidism in the developed world ranges from 4%–5% more in women [2]. Iodine deficiency remains the foremost common reason behind the hypothyroidism worldwide [3]. However, the cause of primary hypothyroidism could also be inherent or spontaneous due to chronic autoimmune disease, Hashimoto's thyroiditis or iatrogenic after surgery or radioiodine ablation. In secondary hypothyroidism, the pituitary gland fails to harness thyroid-stimulating hormone (TSH) In modern medicine there is only hormonal treatment which patient has to take for long time and may result into numerous side effects.

In Ayurveda literature there is no direct reference of the disease. After keen insight of the pathological process and complications of hypothyroidism according to the principles of Ayurveda, we discover that it is primarily caused due to dysfunctioning of the *Agni* and *Dosha-Dushya Sammurchana* suggested it as *Kapha* associated *Pittadushhti* with vitiation of *Vata* due to *Margavarana* and preponderantly *Rasavaha*, *Mamsavaha* and *Medovaha Srotodushhti* due to *Dhatavagnimandya* [4]. Hence, it needs a strong and safe treatment.

CASE REPORT

A 30-year-old male patient non hypertensive and non-Diabetic having UHID no. 392161 dated 19/11/2019, admitted in IPD of *Panchakarma*, AIIA, New Delhi with the chief complaints of Hair fall, Generalised weakness, and Sleep disturbance since 6 months. He also complained of weight gain since last 1 month.

Past history

Patient was asymptomatic 6 months before but suddenly experienced generalised weakness, hair fall associated with irregular weight gain, bowel habits and sleep disturbance. He had consulted to some local clinic for the same complains where he was screened for the Thyroid function test and diagnosed as a case of Hyperthyroidism on 16/7/2017 his TSH & T4 level was <0.005uIU/ml 1.73ng/dl for the same diagnosis the physician to whom he had consulted suggested him to undergo the radio iodine therapy. He gone through the radio iodine therapy on 25/7/2019 after 1 month, he noticed no significant result in his TSH & T4 level. He repeated his thyroid function test on 12/11/2019, noticed changes in TSH (27.64Uiu/ml) & T4 (0.69ng/dl) which shows that therapy leads to Iatrogenic hypothyroidism. He came to AIIA for the management of the same.

He was treated here as a case of Iatrogenic hypothyroidism and *Shodhana therapy (Virechana Karma)* was administered.

Personal history

Patient was vegetarian, having moderate Appetite, irregular bowel habits and disturbed sleep. He was tuition teacher since 6 years. Patient had no addiction, there was no genetic linkage observed in the family.

General Examination- Height-5 feet, Weight- 60 kg, BMI-25.9kg/m², Temperature -98. degree F, Pulse-84/min, Blood pressure-110/70 mm hg, Respiratory rate-22/min, Pallor- Not present, Lymphadenopathy- not palpable.

Table 1: Asthavidha Pariksha ^[5]

S. No.	Factor	Observation
1	Naadi	Kapha-pittaj 84 /min
2	Mala	Sa-Ama
3	Mutra	Snigdhasheetta (Kaphaja)
4	Jihwa	Sama
5	Shabda	Spashta
6	Sparsha	An-Ushana-Sheetta
7	Drik	Samanya
8	Akriti	Pitta-Vataja

Table 2: Dashavidha Pariksha ^[6]

S. No.	Factor	Observation
1	Prakriti	Kapha-pittaj
2	Vikriti	Pravara Tridoshaja
3	Saara	Twaka
4	Samhanana	Madhyama
5	Satmya	Madhyama
6	Satwa	Avara
7	Aahar Shakti	Madhyama
8	Vayama Shakti	Avara
9	Vaya	Pravara
10	Bala	Madhayama

DIAGNOSIS

These includes

- Thyroid-stimulating hormone (TSH)
- T4 (thyroxine)

Lower T4 levels usually means hypothyroidism. However, some people may have increased TSH levels while having normal T4 levels. This is called subclinical (mild) hypothyroidism. It is believed to be an early stage of hypothyroidism.

Investigations- Done Before and After completion of Treatment to assess the changes.

Subjective Parameters- Weight gain, Hair fall, Disturbed sleep recorded.

Objective parameters- On 12/11/2019 TSH level- 27.64 uIU/ml, T4 level- 0.69ng/dl.

Assessment criteria

1. Reduction in weight (BMI)
2. Pittsburgh Sleep Quality Index (PSQI) ^[7].
3. Reduction in hair fall (Hair comb test) ^[8].
4. TSH and T4 level

Treatment plan

The treatment is plan in three different stages according to Ayurveda principles.

Stage 1: Aampachana (Rookshana)

S. No.	Treatment plan	Medicine used	Duration (in days)
1	Deepana-pachana (Appetizer & Digestives)	Varunadi kwatha Arogyavardhini vati	40 ml TID before food 2 tab TID before food for 7 days
2	Uwartana (powder massage)	Triphala choorna	7 days
3	Takra dhara (Pouring of medicated Takra on head)	Takra, Amalki and Musta choorna,	7 days

Stage 2: Shodhana Karma

S. No.	Treatment plan	Medicine used	Duration (in days)
1	SnehaPana (Oral (Intake of medicated Ghee)	Varrunadi ghrita(460 ml)	8 th – 12h Day
2	Abhyanga/Swedana (Oil massage & Sudation)	Triphalyadi taila	13 th – 16th Day
3	Virechana (TherapeuticPurgation)	Trivrita avaleha 70 gm Triphala kwatha 100 ml	16 th Day

Stage 3: Samsarjana Karma (Dietic regimen)

S. No.	Treatment plan	Medicine used	Duration (in days)
1	Samsarjana Karma	Peyadi Samsarjana Karma	16 th -20 th day (Acc. to Madhyam Shuddhi)

Table 3: Schedule of *Snehapana* with *Varunadi Ghrita*

S. No.	Day	Time of Sneh Administration	Onset of hunger	Dose	Symptoms observed
1	Day 1	6:20 AM	11:45 AM	30ml	Vata Anulomana (Normal functioning of Vata)
2	Day 2	6:30 AM	12:05 PM	60ml	Vata Anulomana
3	Day 3	6:25 AM	1:30 PM	90ml	Vata Anulomana, Dipta Agni
4	Day 4	6:45 AM	2:45 PM	120ml	In addition to above, Asamhata Varcha (Unformed Stool)
5	Day 5	6:30 AM	3:30 PM	160ml	In addition to above Anga Mriduta (Softness of the body) Symptoms of Sanyak Snehapana observed on 5 th day

Table 4: Schedule of *Virechana Karma* Adopted

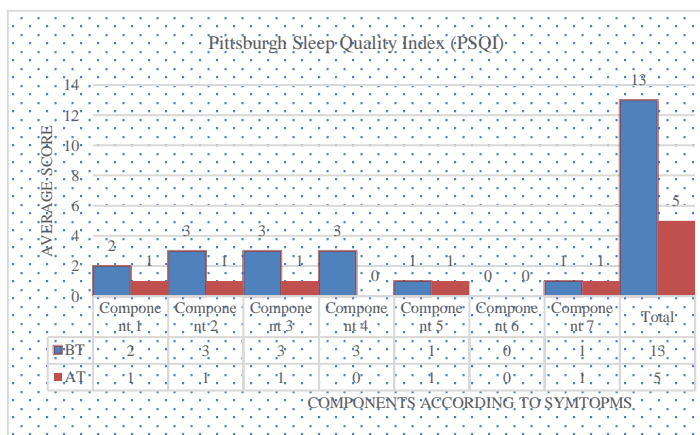
S. No.	Drug	Time of Virechana Yoga	Time of last Virechana Vega	No. of Vegas	Virechana Lakshanas Observed
1	Trivrit Avaleha 70 gm, along with 100 ml <i>Triphala kwatha</i> . Advised to take luke warm water at interval of 20 to 30 minutes.	10:00AM	8:15PM	22 Vegas	Kaphanta Virechana (Virechana ending with expulsion of Kapha), Clarity of senses, feeling of lightness of the body.

OBSERVATIONS

- Reduction in weight and BMI: Weight Measured by automatic weighing machine in hospital before and after treatment precisely. After that BMI is calculated according with reference to height and weight.
- Reduction in Hair fall was assessed on the basis of hair comb test before and after treatment. Patient was asked to count the number of very fallen hair in the comb or brush and on the pillow and keep a record. He Repeat the procedure on every three consecutive days, before shampooing after calculating the mean value we find out his average hair loss per day. That is about average 12.4 before treatment and reduced to average 10.0 after treatment.

3. Assessment of Sleep pattern by Pittsburgh Sleep Quality Index (PSQI)-

The Pittsburgh Sleep Quality Index (PSQI) is an effective instrument used to measure the quality and patterns of sleepin patients. It differentiates “poor” from “good” sleep by measuring seven domains: subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, use of sleep medication, and daytime dysfunction over the last month. Scoring of the answers is based on a 0 to 3 scale, whereby 3 reflects the negative extreme on the Likert Scale. A global sum of “5” or greater indicates a “poor” sleeper.



4. Changes Recorded in TSH & T4 level before and after treatment

ON 12/11/2019
TSH- 27.64 uIU /ml; T4- 0.69 ng/dl

ON 13/12/2019
TSH- 4.26 uIU /ml; T4- 1.02 ng/dl

दिल्ली सरकार

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Name Of Patient : MR. DURGA YADAV ADH-96639317761 Received Date & Time : 11/11/2019 22:39:54
Age / Gender : 30 Yrs Male Patient ID : 131949294 Printing Date & Time : 12/11/2019
Ref. By : LAXMI NAGAR AAMC PC Ref. By Lab :
Company : DGEHS Date : 11/11/2019 Alternate Ref. No. :

Test Name	Value	Unit	Biological Ref Interval
IMMUNOLOGY			
TSH CHEMILUMINESCENCE	27.64	uIU/mL	0.35 - 5.50
ADVISED : Clinical correlation, Repeat for confirmation			
Interpretation: The levels of Thyroid Hormones (T3 & T4) are low in case of primary, secondary and tertiary hypothyroidism and sometimes in nonthyroidal illness also. Increased levels are found in Grave's disease, hyperthyroidism and thyroid hormone resistance. T3 levels are also raised in T3 thyrotoxicosis. In primary hypothyroidism, TSH levels will be elevated. In primary hyperthyroidism, TSH levels will be low. It is especially useful in the differential diagnosis of primary (thyroid) from secondary (pituitary) and tertiary (hypothalamic) hypothyroidism. In primary hypothyroidism, TSH levels are significantly elevated, while in secondary and tertiary hypothyroidism, TSH levels are low or normal. Elevated or low TSH in the context of normal free thyroxine is often referred to as subclinical hypo- or hyperthyroidism, respectively. Serum TSH concentrations exhibit a diurnal variation with the peak occurring during the night and the nadir occurring between 10 a.m. and 4 p.m.			
FT4 CHEMILUMINESCENCE	0.69	ng/dl	0.89 - 1.76
Interpretation: Free thyroxine (FT4) is the metabolically active fraction available to the tissues. Elevations in FT4 cause hypothyroidism, while decrease cause hyperthyroidism. It is used to evaluate suspected thyroid function disorders using free thyroxine measured together with thyroid-stimulating hormone. Free thyroxine (FT4) works well to correct total T4 values for thyroxine-binding globulin alterations, but may give misleading values when abnormal binding proteins are present or the patient has other major illnesses (esththyroid sick syndrome).			

*** End of Report ***

DR. SALIL NARANG
MBBS, MD (PATH)
Consultant Pathologist

Diagnostic Tests Partner : **Unidath** DIAGNOSTICS

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Name of Patient: N.R. DURGA ADBI-996839317761		Received Date & Time: 03/12/2019 16:39:49	
Age: Gender: 50 Yrs Male		Patient ID: E31955041	
Ref. By: LAXMI NAGAR AAMIC PC		Printing Date & Time: 04/12/2019	
Complete: DGERS		Ref. By Lab: /	
Date: 03/12/2019		Alternate Ref. No: /	
Biological Ref Interval: /		/	

Test Name	Value	Unit	Biological Ref Interval
IMMUNOLOGY			
TSH CHEMILUMINESCENCE	4.26	uIU/mL	0.35 - 5.50
<i>Interpretation:</i> The levels of Thyroid Hormones (T3 & T4) are low in case of primary, secondary and tertiary hypothyroidism and sometimes in thyrotoxicosis. The levels of Thyroid Hormones (T3 & T4) are low in case of primary, secondary and tertiary hypothyroidism and sometimes in thyrotoxicosis. The levels of Thyroid Hormones (T3 & T4) are low in case of primary, secondary and tertiary hypothyroidism and sometimes in thyrotoxicosis.			
FT4 CHEMILUMINESCENCE	1.02	ng/dL	0.89 - 1.76
<i>Interpretation:</i> Free Thyroxine (FT4) is the metabolically active fraction available to the tissues. Elevations in FT4 cause hyperthyroidism, while decrease cause hypothyroidism. It is used to evaluate suspected thyroid function disorders using free thyroxine measured together with thyroid-stimulating hormone. Free Thyroxine (FT4) works well to assess total T4 values for thyroid-binding globulin disorders, but may give misleading values when abnormal binding proteins are present or the patient has other major chronic body fluid pH syndrome.			

*** End of Report ***

DR. SAILI NARANG
MBBS, MD (PATH)
Consultant Pathologist

Diagnostic Tests Partner: **Chinpath** DIAGNOSTICS

DISCUSSION

Clinical presentation of hypothyroidism show resemblance with different clinical conditions in Ayurveda. Factors show the involvement of *Tridosha* due to *Margavarana* (vata-kapha dominant) along with *Jathragni* and *Dhatuvagni* (Rasa, Rakta, Meda, Asthi) *mandya*. After considering the symptoms presents such as general weakness (Rasa), sleep disturbance, weight gain (meda), hairfall (Asthi) etc. The management has been planned to provide equilibrium of *Dosha* with administration of *Shodhana* Therapy.

1. Deepana – Pachana (Aampachan/Rookshana)

It is the first line of treatment selected in order to overcome *Amavastha* of *dosha*. It also helps in detachment of morbid *Dosha* from the *Dushya* and *Srotasa*. For *Shodhana Niramavastha*, *Dosha* is essential otherwise it leads to many complications. *Aampachana* as it corrects the *Aagnimandhya* which is the main causes of hypothyroidism. Hence, it is efficient to break the pathogenesis of disease.

Arogyavardhini vati-^[9] Main content Katuki has Katu Rasa. Mainly indicated for *Deepana Pachana*, *Kshudha Pravartan* (increase appetite), *Mala shuddhikar* property. Overall effect in normalising the *Tridoshas*.

Varunadi kwatha-^[10] Ayurvedic decoction have *Varuna*, *Chitrak*, *Bhallatak* which work on *Kapha* and *Vata doshas* (due to its *Ushna Guna*) and increase the *Pitta Dosha*. Due to Katu, Rooksha and *Ushna* properties. It used to increase digestive fire and improve metabolic activity.

Udwartana- Triphala choorna^[11] was adopted for *Rookshana Karma*. *Udwartana* (dry powder massage). It removes *Srotorodha*. *Triphala churna* due to its *Ruksha*. *Shukshma Guna* possess *Kaphapitta Shamaka* properties. By virtues of it, it helps in reducing the excess *Meda & Kleda*, and reaches to cellular level. *Rookshana* is treatment of choice for *Margavarana*.

Takradhara-^[12] *Takradhara* with *Musta* and *Amalki choorna* used for *Rookshana*. *Takra* has *Ushana Prabhava* but in combination with *Amalki* and *Musta*. It provides *sheet prabhava* on whole body and nervous system *Rooksha*, *ushna* and *Aam Pachaka*. It also helps in reducing symptoms such as insomnia.

2. Abhayanga- Triphaladi taila^[13] contains *Triphala*, *Eranda*, *Guduchi* which possess *Kapha Pitthghna Guna*, *Medaghana* property and

Swedana done with *Dashmoola kwatha*. *Abhayanga* produces *Kledana* of *Dosha* which are Liquefied with *Swedana* and helps to direct the lodged *Dosha* towards *Kostha*.

3. Virechana Karma- The therapy through which vitiated *Doshas* and toxins are eliminated through the *Adhomarga* (anal route). Due to *Margavaranajanya Samprapti* in Hypothyroidism and *Kapha* dominant state with *Pitta Dushti*, to remove obstruction of *Kapha* and to regularize the movement of *Vata*, it is found beneficial. It has a great efficacy of *Sroto-shodhana* and in term it acts on *Dhatavagni* and corrects the functioning of *Agni*, *Srotas* and *Doshas*.

4. Samsarjana Karma^[14] is essential after *Shodhana*. It leads to *Agnivridhi* which provides nutrition and helps to normalize the body tissue.

CONCLUSION

According to the symptoms of hypothyroidism with considering the status of *Dosha-Dushya* and *Srotas* within the body, the management has been planned to provide equilibrium of *Dosha* with *Shodhana Therapy*. It provides better results in different symptoms of hypothyroidism clinically and laboratory Parameters also. The Findings of the present study was worth documenting but it can't be generalized and further long term follow up studies with large sample are required to develop standard treatment protocol for hypothyroidism.

Conflict of Interest

None declared.

Financial Support

None declared.

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