

Case Report

Integrative yoga and naturopathy management in a middle-aged woman with hypothyroidism and migraine: a case report

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ABSTRACT

Hypothyroidism and migraine are chronic, often coexisting conditions in middle-aged women, sharing underlying mechanisms such as hormonal imbalance, systemic inflammation, and autonomic dysfunction. Conventional treatments may provide partial relief, prompting interest in integrative approaches, such as yoga and naturopathy, for comprehensive management. A 45-year-old female with an 8-year history of hypothyroidism presented with the onset of recurrent migraine-like headaches, disturbed sleep, and weight gain for the past 2 months. She was admitted to a yoga and naturopathy hospital for a 15-day inpatient program. Following clinical and diagnostic evaluation, she received an integrative protocol including customized yoga therapy, hydrotherapy, mud therapy, acupuncture, massage, a plant-based diet, and relaxation techniques. Following the intervention, the patient showed reductions in weight, body mass index (BMI), body circumferences and pain intensity, and improvements in complete blood count, thyroid profile, lipid parameters, inflammatory markers, and quality of life without adverse effects. This case highlights the potential of integrative yoga and naturopathy in improving endocrine, neurological, and quality of life outcomes in patients with hypothyroidism and migraine. Further studies are needed to establish long-term efficacy and generalizability.

Keywords: Hypothyroidism, Integrative medicine, Migraine, Naturopathy, Quality of life, Yoga

INTRODUCTION

Hypothyroidism is a common endocrine disorder caused by insufficient production of thyroid hormones, leading to a range of metabolic and systemic dysfunctions. In India, the prevalence of overt hypothyroidism among adults is estimated at approximately 11%, with a significantly higher burden among middle-aged women. If untreated, hypothyroidism can contribute to complications such as dyslipidemia, cardiovascular disease, and decreased quality of life (QoL).¹ Migraine, another condition with a high prevalence in women, is a chronic neurological disorder characterized by recurrent episodes of moderate to severe headache. Globally, migraine is the second leading cause of years lived with disability, and in India, the prevalence is reported to be 25% in women,

especially in the 30 to 49-year age group.² Both hypothyroidism and migraine are known to affect women disproportionately and may share overlapping pathophysiological mechanisms. Yoga and naturopathy (YN) are complementary, holistic systems that emphasize mind-body balance and promote self-regulation through lifestyle-based interventions.³

Previous studies suggest that a six-month integrated yoga program led to significant reductions in thyroid-stimulating hormone (TSH) levels and improved QoL in women with subclinical hypothyroidism.⁴ Similarly, yoga therapy has demonstrated efficacy in reducing the frequency and severity of migraine episodes compared to conventional care alone.⁵ In a prospective study conducted at a naturopathy hospital in India, patients with

hypothyroidism who received YN treatment over a 10 to 15-day inpatient stay showed improvements in thyroid-stimulating hormone (TSH), lipid profile, and clinical symptoms.⁶ The present case report seeks to address this gap by evaluating the impact of an integrated YN intervention in a middle-aged woman with comorbid hypothyroidism and migraine. This report highlights both clinical and laboratory outcomes to provide a more comprehensive understanding of the potential role of integrative YN therapies in a patient with hypothyroidism and migraine.

CASE REPORT

Patient information

A 45-year-old married female who works as a housewife presented with a history of gradual weight gain over the past 8 years and is a known case of hypothyroidism, currently managed with levothyroxine 100 micrograms (1-0-0) before food for the past 8 years. Over the last 2 months, she reported experiencing recurrent one-sided headaches accompanied by disturbed sleep, which were exacerbated by overthinking and psychological stress. She noted that the headaches were often relieved temporarily by vomiting or the use of over-the-counter painkillers (i.e., ibuprofen 200 mg SOS). Her dietary pattern includes a mixed diet, and she has no history of substance use or addictions. There is no significant family history of thyroid disorders, neurological diseases, or psychological conditions. The patient expressed interest in exploring non-pharmacological approaches to support her thyroid health and manage her migraine symptoms holistically.

Clinical findings

On clinical examination, the patient weighed 88.4 kg with a body mass index (BMI) of 32.9 kg/m², indicating obesity. Vital signs were stable, with a pulse rate of 83 beats per minute and blood pressure measuring 124/80 mmHg. The patient appeared mentally alert but reported mild psychological stress. Naturopathic assessments revealed stress rings and radii Solaris in both irises on iridodiagnosis, suggestive of systemic stress. Facial diagnosis indicated whole-body encumbrance with noticeable puffiness, and tongue examination showed blackish discoloration over the sides and tip, suggesting possible digestive or systemic imbalance.

Timeline

The timeline of the intervention from hospital admission to follow-up is provided in Table 1.

Diagnostic assessment

Anthropometric measures

Weight was measured using a digital weighing machine (Omron Healthcare Private Limited), and BMI was

calculated using the formula (weight in kilograms divided by height in meters squared). body circumferences (i.e., mid-arm circumference (MAC), mid-thigh circumference (MTC), waist circumference (WC), hip circumference (HC), and waist-to-hip ratio (WHR) were measured using a non-stretchable inch tape. Measurements were taken before and after the intervention.

Biochemical assessment

Biochemical investigations including complete blood count (CBC) (i.e., hemoglobin, packed cell volume (PCV), mean corpuscular volume (MCV), mean corpuscular hemoglobin (MCH), mean corpuscular hemoglobin concentration (MCHC), total WBC count, neutrophils, lymphocytes, monocytes, eosinophils, basophils, red blood cells, platelet count), Thyroid profile (i.e., triiodothyronine (T3), thyroxine (T4), thyroid stimulating hormone (TSH)), lipid profile (i.e., triacylglycerol, total cholesterol (TC), high-density lipoprotein (HDL), low-density lipoprotein (LDL), very low density lipoprotein (VLDL), non-HDL cholesterol, CHO/HDL ratio, LDL/HDL ratio, TGL/HDL ratio), and inflammatory markers (i.e., erythrocyte sedimentation rate (ESR)) were assessed before and after the intervention in the standard private laboratory.

Visual analog scale for pain

Visual analog scale (VAS) was used to assess the patient's pain intensity on a scale of 0–10, with 0 denoting no pain and 10 denoting the greatest possible pain. The patient was instructed to place a mark on the scale to represent the degree of their pain.⁷

Short-form healthy survey

The SF-12 (Short Form-12) is a brief, standardized health survey used to measure overall health-related quality of life (QoL). It includes 12 questions covering physical and mental health domains. Derived from the longer SF-36, it provides two summary scores: the physical component summary (PCS) and mental component summary (MCS). The SF-12 is widely used in clinical and research settings due to its reliability and efficiency.⁸

Therapeutic intervention

The patient underwent the following YN-based lifestyle intervention customized yoga protocol (30 min/session, twice a day) includes asanas, pranayama, and relaxation techniques. Plant-based raw diet (approximately 600–650 Kcal per day). Massage therapy, hydrotherapy, mud therapy, heliotherapy, plantain leaf bath, acupuncture. The details of the YN intervention given to the patient are provided in Table 2.

Follow-up and outcome

The findings of this study showed a notable reduction in anthropometric measurements (i.e., Weight, BMI, MAC,

MTC, WC, HC, WHR), inflammatory markers (i.e. ESR), VAS scores for pain, and improvement in lipid profile (reduction in total cholesterol, triglycerides, VLDL, LDL, LDL/HDL ratio, Non-HDL, CHO/HDL ratio, TGL/HDL ratio with increase in HDL), hematological parameters (i.e., increase in Hb, PCV, MCV, MCH, MCHC, monocytes, basophils and reduction in total WBC count,

neutrophils, lymphocytes, eosinophils, RBC, Platelet count), Thyroid profile (i.e. 'increase in free T3 and free T4, and reduction in TSH), and physical and mental health domains of SF-12 health survey after 15-days of YN intervention in a patient with hypothyroidism and migraine (Table 3).

Table 1: Timeline.

Date	Event
Day: 1 (10/7/2023)	Admission and baseline assessment
Day: 2–16 (25/7/2023)	Baseline assessment and beginning of the intervention
Day:17 (26/7/2023)	Completion of intervention, post-assessment, and discharge

Table 2: A detail of the YN intervention provided to the patient.

Name of the therapy	Name of the specific treatment	Duration (in min)	Frequency
Yoga protocol			
Loosening exercise	Pawanamuktasana series-1, 2 and 3	10 mins (6 rounds each)	28
	Tadasana	30 mins (6 rounds each)	28
	Matsyasana		
	Viparita karni		
	Sarvangasana		
	Sethubandhasana		
	Ustrasana		
	Marjari asana		
Pranayama	Vibhaga pranayama with AUM Chanting	10 mins (6 rounds each)	28
	Nadishodhana pranayama		
	Brahmari pranayama		
	Ujjayi pranayama		
Bandha	Jalandhara bandha and uddiyana bandha	5 mis	20
Relaxation technique	Yoga nidra		20
Naturopathy intervention			
Mud therapy	Mud pack to the abdomen, neck and eyes	20	13
	Full mud bath	20	2
Hydrotherapy	Neutral enema	-	4
	Cold neck pack	20	14
	Gastro-hepatic pack	20	14
	Steam bath	12	2
	Cold hip bath	20	7
	Plantain leaf bath	45	2
Acupuncture	LI4, ST36, CV6, CV4, GV20, SP6, KI3, BL23, BL20, GB20, GB8, ST8, Taiyang (EX-HN5), LV3, GB5, GB14, BL2, Yintang (EX-HN3)	20	12
Massage therapy	Full body massage	60	1
	Partial massage to neck	15	12
Diet therapy			
Timings	Food items	Quantity	
7.00 am	Vegetable juice (Ash gourd / Bottle gourd/ Beetroot/ Plantain pith / Radish)	200 ml	
9.00 am	Sprouts (green gram/ pearl millet/ groundnut)	25 grams	
	Vegetable salad (cucumber/ beetroot, carrot/ tomato/bottle gourd).	200 grams	
	Any 2 fruits (guava / banana / orange watermelon/ muskmelon/ papaya)	200 grams	
12:00 pm	Fruit juice (Amla/ Orange/ Sweet lime/	200 ml	

Continued.

Name of the therapy	Name of the specific treatment	Duration (in min)	Frequency
	Papaya/ Pineapple/ Watermelon/ Grapes)		
1.00 pm	Sprouts (Green gram and Groundnut) Fruit salad (Watermelon/ Muskmelon/ Papaya/ Pineapple/ Watermelon/ Grapes).	50 grams 200 grams	
4:00 pm	Evening juice (Coriander/Curry leaves/mint)	200 ml	
7.00 pm	Vegetable salad (cucumber/ beetroot, carrot/ tomato/bottle gourd). Any 2 fruits (Guava / Banana / Orange Watermelon/ Muskmelon/ Papaya)	200 grams 200 grams	

Note: LI=large intestine; ST=stomach; CV=conception vessel; GV=governing vessel; SP=spleen; KI=kidney; BL=bladder; GB=gallbladder; LV=liver; EX-HN=extra head point.

Table 3: Pre-test, post-test assessments of the subject.

Parameters	Baseline (1 st day)	Post-intervention (15 th day)
Weight (kg)	88.4	80
BMI (kg/m ²)	32.9	29.7
Mid arm	Right	33
Circumference (cm)	Left	30
Mid-thigh circumference	Right	33
(cm)	Left	51
Waist circumference (cm)	99	46
Hip circumference (cm)	106	46
Waist-hip ratio	0.93	96
Hemoglobin (g/dl)	10.6	104
Packed cell volume%	35.6	0.92
Mean corpuscular volume (fl)	77.4	12
Mean corpuscular hemoglobin (pg)	23.0	40
MCHC (mg/dl)	29.7	87.8
Total WBC count (cells/cumm)	11000	28.7
Neutrophils %	73	32.7
Lymphocytes %	50	4400
Monocytes %	8	45.9
Eosinophils %	5	39.3
Basophils %	0.8	11.7
Red blood cells (Million/cmm)	4.5	2.1
Platelet count (Lakhs/cumm)	3.2	1.0
ESR (mm)	55	4.43
Free T3 (pg/dl)	1.0	3.07
Free T4 (ng/dl)	0.5	25
TSH (uIU/l)	8.96	3.96
Triglycerides (mg/dl)	160	1.640
Total cholesterol (mg/dl)	270	0.510
HDL (mg/dl)	21	113
LDL (mg/dl)	161	155
VLDL (mg/dl)	49	33.7
Non-HDL cholesterol (mg/dl)	150	98
CHO/HDL (Ratio)	12.86	23
LDL/HDL (Ratio)	3.64	121
TGL/HDL (Ratio)	7.61	4.60
VAS	9	2.9
Short form-12 health survey	Physical score	3.35
	Mental score	2
		51
		60

NOTE: BMI=body mass index; MCHC=mean corpuscular hemoglobin concentration; ESR=erythrocyte sedimentation rate; HDL=high density lipoprotein; LDL=low density lipoprotein; VLDL=very low-density lipoprotein; TGL=triacylglycerol; CHO=cholesterol, T3=triiodothyronine, T4=thyroxine, TSH=thyroid stimulating hormone.

DISCUSSION

The objective of this case study was to evaluate the impact of an integrated YN intervention on anthropometric parameters, biochemical markers, and QoL in a middle-aged woman with comorbid hypothyroidism and migraine. After 15 days of inpatient YN therapy, the patient demonstrated marked improvements in clinical and laboratory outcomes, including reduced inflammatory markers, improved complete blood count, lipid and thyroid profiles, and enhanced physical and mental health domains of QoL. Previous literature suggests that yoga therapy has been shown to reduce TSH levels and enhance metabolic function and QoL in women with subclinical hypothyroidism. This effect is attributed to stimulation of the hypothalamic-pituitary-thyroid (HPT) axis, reduction in cortisol levels, and improved blood flow to the thyroid region through asanas such as Sarvangasana and Matsyasana.⁴ Furthermore, yoga's regulatory influence on the autonomic nervous system, neuroendocrine responses, and inflammatory pathways has been well documented in the context of both endocrine and neurological conditions.

Regarding migraine, previous studies have shown that yoga can reduce headache frequency, intensity, and dependence on medication. These benefits are linked to improved autonomic balance, enhanced cerebral circulation, and the release of endogenous opioids through controlled breathing and meditative practices.⁵ In the present case, the patient reported reduced migraine severity and improved biochemical parameters, which may reflect the autonomic and neurovascular modulation achieved through YN practices. Hydrotherapy, an integral component of the intervention, has previously been associated with improvement in thyroid function and lipid profile through enhanced peripheral circulation and metabolic stimulation.⁶ In migraine care, hydrotherapeutic techniques like hot foot baths and cold compresses have been traditionally used to reduce neurovascular tension and muscle rigidity, helping to alleviate headache intensity.⁹ The patient's symptom relief following hydrotherapy supports these findings.

Similarly, acupuncture contributed to clinical improvement through modulation of neuroendocrine and neurovascular mechanisms. Prior evidence suggests acupuncture can reduce TSH levels and improve thyroid-related symptoms via stimulation of the HPT axis and improved thyroid perfusion.¹⁰ In migraine, acupuncture is effective in decreasing attack frequency and severity by influencing the trigemino-vascular system and enhancing endogenous pain modulation pathways.^{11,12} Massage therapy may have supported endocrine and neurological recovery by promoting lymphatic drainage, reducing muscle tension, and enhancing blood flow. These mechanisms are supported by literature that shows massage therapy modulates stress-related hormones such

as serotonin and dopamine, which play a role in both thyroid health and migraine relief.¹³

Lastly, the plant-based diet (PBD) administered during the intervention likely contributed to the observed biochemical improvements. PBDs are known to reduce systemic inflammation, support detoxification, and aid hormonal regulation. In hypothyroidism, particularly of autoimmune origin, such diets can improve lipid metabolism, digestive function, and thyroid balance.¹⁴ For migraine, plant-based diets rich in magnesium, omega-3 fatty acids, and antioxidants are associated with reduced frequency and intensity of attacks, likely due to their role in stabilizing neuronal excitability and reducing prostaglandin-mediated inflammation.¹⁵ Taken together, the current findings align with existing evidence and suggest that a short-term, inpatient, integrated YN approach can lead to measurable improvements in endocrine, neurological, and systemic health in patients with dual diagnoses of hypothyroidism and migraine.

This is the first documented case report to evaluate the integrated impact of YN on both physical and mental health outcomes in a patient with hypothyroidism and migraine. It provides novel clinical insights into the potential of YN as a complementary approach for managing endocrine and neurological disorders, particularly in patients with suboptimal response to conventional therapies. All interventions were well tolerated, with no adverse events reported during the 15-day inpatient program, highlighting the safety and feasibility of the integrative approach.

The primary limitation of this study is its single-patient design, which restricts the generalizability of the results. The absence of a control group limits the ability to attribute improvements exclusively to the YN intervention.

Additionally, the short duration of the intervention does not allow for assessment of the long-term sustainability of the outcomes. The use of self-reported measures such as QoL and symptom relief introduces potential reporting bias. Further studies with larger sample sizes, control comparisons, and long-term follow-up are required to validate and extend these findings.

CONCLUSION

The integrated YN intervention was effective in reducing migraine symptoms, improving anthropometric measures, thyroid functions, lipid profiles, physical, and mental components of quality of life in a patient with hypothyroidism and migraine. While these outcomes are encouraging, they are derived from a single case and should be interpreted with caution. Future randomized controlled trials with larger populations and extended follow-up periods are essential to confirm the therapeutic benefits and establish clinical applicability of YN in

managing comorbid endocrine and neurological conditions.

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REFERENCES

1. Unnikrishnan AG, Kalra S, Sahay RK, Bantwal G, John M, Tewari N. Prevalence of hypothyroidism in adults: An epidemiological study in eight cities of India. *Indian J Endocrinol Metab*. 2013;17(4):647–52.
2. Kulkarni GB, Rao GN, Gururaj G, Subbakrishna DK, Steiner TJ, Stovner LJ. Prevalence and burden of headache disorders in India: methodology and findings from a community-based survey in Karnataka State. *J Headache Pain*. 2015;16:94.
3. Mooventhana A, Nivethitha L, Subramanian KK, Vijay A, Manavalan N. Impact of a residential yoga and naturopathy intervention on blood glucose and diabetes-related risk factors in patients with type 2 diabetes mellitus: A retrospective study. *Brain Behav Immun Integr*. 2025;9:100101.
4. Sachdeva U, Saxena A, Saxena S. Effect of integrated approach of yoga therapy on thyroid function and quality of life in women with subclinical hypothyroidism: A randomized controlled trial. *J Complement Integr Med*. 2020;17(4):20190254.
5. John PJ, Sharma N, Sharma CM, Kankane A. Effectiveness of yoga therapy in the treatment of migraine without aura: A randomized controlled trial. *Headache*. 2007;47(5):654–61.
6. Srinivasan TM, Nivethitha L, Mooventhana A. Effect of yoga and naturopathy intervention on thyroid function and lipid profile: A prospective observational study. *Int J Yoga*. 2017;10(2):123–7.
7. Vijay A, Sharon N, Suganthi S, Nivethitha L, Mooventhana A, Manavalan N. Impact of yoga and naturopathy in the management of intervertebral disc bulge: A case series. *J Bone Joint Dis*. 2025;40:37-43.
8. Deepa Y, Vijay A, Thamizhmaran TD. Effect of integrated yoga and naturopathy intervention in a patient with osteoid osteoma: A case report. *J Bone Joint Dis*. 2024;39:173-7.
9. Mooventhana A, Nivethitha L. Scientific evidence-based effects of hydrotherapy on various systems of the body. *N Am J Med Sci*. 2014;6(5):199–209.
10. Sun Y, Gan L, Li P, Wang L, Yang J, Zhang R. Acupuncture for hypothyroidism: A systematic review and meta-analysis. *Complement Ther Clin Pract*. 2018;31:108–14.
11. Li Y, Liang F, Yang X. Acupuncture for treating acute attacks of migraine: a randomized controlled trial. *Headache*. 2009;49(6):805–16.
12. Zhao L, Chen J, Li Y. The long-term effect of acupuncture for migraine prophylaxis: a randomized clinical trial. *JAMA Intern Med*. 2017;177(4):508–15.
13. Kalichman L. Massage therapy for fibromyalgia symptoms: a systematic review. *J Bodyw Mov Ther*. 2010;14(3):295–305.
14. Staii A, Mirocha S, Todorova-Koteva K, Glinberg S, Weiss RE. Hashimoto thyroiditis is more frequent than expected when diagnosed by cytology which uncovers a preclinical state. *Thyroid Res*. 2010;3(1):11.
15. Barnard ND, Shankar A, Guha A. A low-fat vegan diet improves migraine severity and frequency: a randomized controlled trial. *Nutr J*. 2021;20(1):86.

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