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A SINGLE CASE STUDY ON AYURVEDIC MANAGEMENT OF HYPOTHYROIDISM

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ABSTRACT

Background: Hypothyroidism is a clinical condition in which the thyroid gland does not produce enough thyroid hormone due to the under activity of the thyroid gland that leads to a slow basal metabolic rate. The prevalence rate of hypothyroidism is 11% in the Indian population. In *Ayurveda*, hypothyroidism resembles *Mandagni, Medo Dhatvagni Mandya, Galgand, Kaphavrut Udana Vayu* and *Kaphavrut Samana Vayu*. **Aim & objectives:** To study the probable role of *Gandmala Kandan Rasa, Kanchanar Guggulu* & *Varunadi Kwath* and find effective *Ayurvedic* drugs in managing hypothyroidism. **Materials and Methods:** A 35-year-old female patient diagnosed case of hypothyroidism with complaints of fatigue, hair loss, weight gain and loss of appetite for several months, was visited at the *Kayachikitsa* OPD of Rani Dullaiya Smriti Ayurved P.G. College and Hospital, Bhopal. The patient was treated with *Gandmala Kandan Rasa, Kanchanar Guggulu* and *Varunadi Kwath*. The study lasts 90 days, with follow-up every 1 month. The assessment was done based on symptomatic relief and thyroid report after treatment. **Observation:** *Ayurvedic* management yielded symptomatic relief and reduced the range of thyroid-stimulating Hormones after treatment. **Conclusion:** Based on the results obtained, it can be concluded that *Gandmala Kandan Rasa, Kanchanar Guggulu* and *Varunadi Kwath* can be used as effective treatments for managing hypothyroidism.

Keywords: Hypothyroidism, *Gandmala Kandan Rasa, Kanchanar Guggulu, Varunadi Kwath.*

INTRODUCTION

Hypothyroidism is the most common endocrine condition caused by the hypoactivity of the thyroid gland. Women are affected approximately six times more frequently than men, with an overall Indian prevalence of over 2% in women but under 0.1% in men; lifetime prevalence for an individual is higher, perhaps as high as 9% for women and 1% for men, with a mean age at diagnosis around 60 years. The worldwide prevalence of subclinical hypothyroidism varies from 1% to 10%.[1] A consequence of prolonged hypothyroidism is the infiltration of many body tissues by the mucopolysaccharides hyaluronic acid and chondroitin sulphate, resulting in a low-pitched voice, poor hearing, slurred speech due to a large tongue, weight gain, enlarged thyroid gland, poor appetite, constipation, cold peripheries, myalgia, poor libido and compression of the median nerve at the wrist (carpal tunnel syndrome). Infiltration of the dermis gives rise to non-pitting oedema (myxoedema), most marked in the skin of the hands, feet and eyelids. In the vast majority of cases, hypothyroidism results from an intrinsic disorder of the thyroid gland in which serum T_4 is low and TSH is elevated. The drug of choice in hypothyroidism is levothyroxine replacement.[2] According to *Ayurveda,* hypothyroidism can be considered *Mandagni, Medo Dhatvagni Mandya, Galgand, Kaphavrut Udana Vayu* and *Kaphavrut Samana Vayu. Acharya Charaka* stated that in the case of covering with *Kapha*, there are coldness, heaviness and pain, suitability of pungent, etc. and particular desire for fasting, exertion, rough and hot things. If Kapha covers Udana Vat*a*, there are abnormal complexion, obstruction in speech and voice, debility, heaviness in the body and anorexia. The absence of sweating, poor digestion, horripilation, and excessive coldness of body parts are the symptoms of *Samana Vata,* covered by *Pitta.*[3] According to *Acharya Sushruta Galganda, it* is manifested as a big or small swelling that, adhering firmly over the neck region (*Gala*), resembles the shape of a scrotal sac.[4] All these conditions can be correlated with signs and symptoms of hypothyroidism. Hypothyroidism, with its increasing prevalence, is a common public health problem in developing countries. Management of hypothyroidism as per contemporary treatment modalities includes the use of levothyroxine drugs, which is a successful remedy but has long-term side effects and complications. Hence, an effort has been made to combat the subjective and objective parameters of hypothyroidism with the help of promoting the use of *Gandmala Kandan Rasa, Kanchanar Guggulu* and *Varunadi Kwath* in the management of hypothyroidism.

AIM AND OBJECTIVES

- To study the probable role of *Gandmala Kandan Rasa, Kanchanar Guggulu* and *Varunadi Kwath* in managing hypothyroidism.
- To find out effective *Ayurvedic* management for hypothyroidism.

MATERIALS AND METHODS

- Selection and Source of Patient

For this study, the patient was registered from the OPD of the *Kayachikitsa* department of Rani Dullaiya Smriti Ayurved P.G. College and Hospital, Bhopal.

- Plan for study

The patient taking allopathic medicine was stopped during the study period.

The medicines required for the patient were procured and prepared in pharmacy at Rani Dullaiya Smriti Ayurved P.G. College and Hospital, Bhopal.

- Duration of study-

90 Days

Follow up-

Every 1 month.

CASE STUDY

A 35-year-old female patient visited Govt. Ayurvedic Hospital Bhopal (OPD no.-2445762) with chief complaints of fatigue, weight gain, hair loss and loss of appetite for several months.

HISTORY OF PRESENT ILLNESS

The patient was average several months back, but then gradual fatigue, weight gain, hair loss, and loss of appetite started. After having initial medication (under the supervision of an MBBS physician), she got temporary relief, and symptoms were under control, but later on, she got the same episode. The patient was not getting much relief with allopathic medicines, so he came to Ayurvedic Hospital Bhopal on 30/04/2024 for *Ayurvedic* treatment.

HISTORY OF PAST ILLNESS

- Medical history- on medication advised by MBBS physician.
- Surgical history- no
- Psychiatric history- no

PERSONAL HISTORY

- Addiction- no, Occupation- teacher, Appetite- decreased Sleep- disturbed, Bowel- incomplete defecation, Micturition- normal, Allergy- no allergy.

GENERAL EXAMINATION

- Pallor skin and conjunctivae of the eyes.
- Icterus, cyanosis, clubbing and oedema are absent.
- Lymph nodes are not palpable.
- BP-110/70mmHg
- Pulse-70/min.
- SpO_2 and all vitals are stable.

SYSTEMIC EXAMINATION

- CVS- normal.
- RS- bilateral lungs sound clear
- P/A- soft and palpable

INVESTIGATION

1. Thyroid profile (30/04/2024): T_3 and T_4 are 86.2 and 5.37 ng/dl respectively. TSH (thyroid stimulating hormone) is raised to **13.9**µIU/mL.
2. Thyroid profile (24/07/2024): T_3 and T_4 are 82.8 and 5.49 ng/dl respectively. TSH (thyroid stimulating hormone) range is **6.74**µIU/mL.

TREATMENT REGIMEN

Table No. 1

S. No.	Drug used	Dose	Frequency	Duration
1.	*Gandmala Kandan Rasa*	250 mg	Twice a day with honey	30 days
2.	*Kanchanar Guggulu*	500 mg	Twice a day with normal water	60 days
3.	*Varuradi Kwath*	20 ml	Twice a day with equal quantity of water	

Table No. 2 INGREDIENTS OF *GANDMALA KANDAN RASA*[5]

S. No.	Content	Botanical name	Quantity
1.	*Shuddha parada*	*Purified mercury*	12gm
2.	*Shuddha gandhaka*	*Purified sulphur*	6gm
3.	*Tamra bhasma*	*Purified copper*	6gm
4.	*Mandura bhasma*	*Purified iron oxide calx*	36gm
5.	*Shunti*	*Ginger officinalis*	72gm
6.	*Maricha*	*Piper nigrum*	72gm
7.	*Pippali*	*Piper longum*	72gm
8.	*Saindhava lavana*	*Rock salt*	6gm
9.	*Kanchanar*	*Bauhinias variegate*	144gm
10.	*Guggulu*	*Commiphora mukul*	144g m
11.	*Goghrita*	Cow ghee	Q.S.

Table No. 3 INGREDIENTS OF *KANCHANAR GUGGULU*[6]

S. No.	Content	Botanical name	Quantity

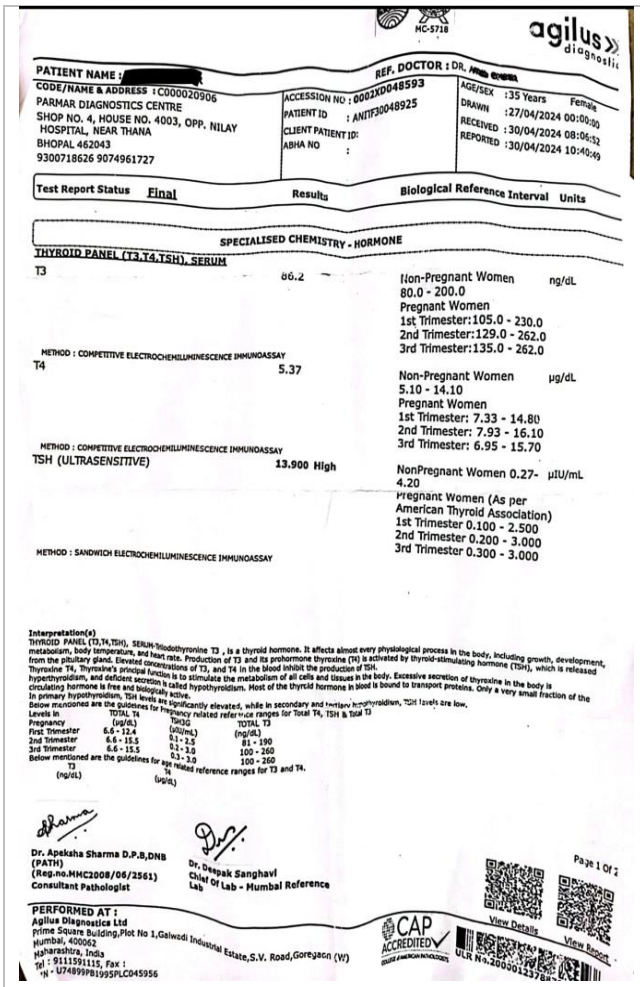
1.	*Kanchanara*	*Bauhinia Variegata*	240gm
2.	*Shunti*	*Ginger Officinalis*	48gm
4.	*Maricha*	*Piper Nigrum*	48gm
5.	*Pippali*	*Piper Longum*	48gm
6.	*Haritaki*	*Terminalia Chebula*	24gm
7.	*Vibhitaki*	*Terminalia Bellerica*	24gm
8.	*Amalaki*	*Crataeva Nurvala*	24gm
9.	*Varuna*	*Cardamom*	24gm
10.	*Ela*	*Elettaria Cardamomum*	12gm
11.	*Twak*	*Cinnamomum Zeylancium*	3gm
12.	*Patra*	*Cinnamomum Tamala*	3gm
13.	*Guggulu*	*Commiphora Mukul*	477gm

Table No. 4 CONTENTS OF *VARUNADI KWATH* [7]

S. No.	Content	Botanical name	Quantity
1.	*Varuna*	*Crataeva Nurvala*	1 part
2.	*Vakapushpa (shivlingi)*	*Bryonialancinosa*	1 part
3.	*Bilva*	*Aegle marmelos*	1 part
4.	*apamarga*	*Achyranthes aspera*	1 part
5.	*Chitrak*	*Plumbago zeylanica*	1 part
6.	*Brahat agnimanth*	*Prema serratifolia*	1 part
7.	*Laghu agnimanth*	*Premna mucronata*	1 part
8.	*Shigru*	*Moringa oleifera*	1 part
9.	*Shigruk*	*Moringa stenopetala*	1 part
10.	*Brahati*	*Solanum indicum*	1 part
11.	*Kantkari*	*Solanum virginianum*	1 part
12.	*Peeta Saireyaka*	*Barleria prionitis*	1 part
13.	*Rakta Saireyaka*	*Barleria cristata*	1 part
14.	*Neel Saireyaka*	*Barleria strigosa*	1 part
15.	*Murva*	*Marsdenia tenacissima*	1 part
16.	*Karkatsharingi*	*Pistacia integerrima*	1 part
17.	*Kiratikta*	*Swertia chirata*	1 part
18.	*Ajashringi*	*Gymnema sylvestre*	1 part
19.	*Bimbi*	*Coccinia indica*	1 part
20.	*Karanja*	*Pongamia pinnata*	1 part
21.	*Shatavari*	*Asparagus racemosus*	1 part

Table No. 5
RESULT & INTERPRETATION

S. No.	Symptoms before treatment	Symptoms after treatment
1.	Fatigue	No fatigue
2.	Weight gain	No weight gain
3.	Hair loss	Reduced hair fall
4.	Loss of appetite	Normal appetite



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PATIENT NAME : [redacted] REF. DOCTOR : DR. [redacted]

CODE/NAME & ADDRESS : C000020906
PARMAR DIAGNOSTICS CENTRE
SHOP NO. 4, HOUSE NO. 4003, OPP. NILAY HOSPITAL, NEAR THANA
BHOPAL 462043
9300718626 9074961727

ACCESSION NO : 0002XD048593
PATIENT ID : ANITF30048925
CLIENT PATIENT ID:
ABHA NO :

AGE/SEX : 35 Years Female
DRAWN : 27/04/2024 00:00:00
RECEIVED : 30/04/2024 08:06:52
REPORTED : 30/04/2024 10:40:49

Test Report Status Final	Results	Biological Reference Interval	Units

SPECIALISED CHEMISTRY - HORMONE

THYROID PANEL (T3,T4,TSH), SERUM

T3	86.2	Non-Pregnant Women 80.0 - 200.0 Pregnant Women 1st Trimester:105.0 - 230.0 2nd Trimester:129.0 - 262.0 3rd Trimester:135.0 - 262.0	ng/dL
METHOD : COMPETITIVE ELECTROCHEMILUMINESCENCE IMMUNOASSAY			
T4	5.37	Non-Pregnant Women 5.10 - 14.10 Pregnant Women 1st Trimester: 7.33 - 14.80 2nd Trimester: 7.93 - 16.10 3rd Trimester: 6.95 - 15.70	µg/dL
METHOD : COMPETITIVE ELECTROCHEMILUMINESCENCE IMMUNOASSAY			
TSH (ULTRASENSITIVE)	13.900 High	NonPregnant Women 0.27-4.20 Pregnant Women (As per American Thyroid Association) 1st Trimester 0.100 - 2.500 2nd Trimester 0.200 - 3.000 3rd Trimester 0.300 - 3.000	µIU/mL
METHOD : SANDWICH ELECTROCHEMILUMINESCENCE IMMUNOASSAY			

Interpretation(s)
THYROID PANEL (T3,T4,TSH), SERUM-Triiodothyronine T3 , is a thyroid hormone. It affects almost every physiological process in the body, including growth, development, metabolism, body temperature, and heart rate. Production of T3 and its prohormone thyroxine (T4) is activated by thyroid-stimulating hormone (TSH), which is released from the pituitary gland. Elevated concentrations of T3, and T4 in the blood inhibit the production of TSH.
Thyroxine T4, Thyroxine's principal function is to stimulate the metabolism of all cells and tissues in the body. Excessive secretion of thyroxine in the body is hyperthyroidism, and deficient secretion is called hypothyroidism. Most of the thyroid hormone in blood is bound to transport proteins. Only a very small fraction of the circulating hormone is free and biologically active.
In primary hypothyroidism, TSH levels are significantly elevated, while in secondary and tertiary hypothyroidism, TSH levels are low.
Below mentioned are the guidelines for Pregnancy related reference ranges for Total T4, TSH & Total T3

Levels in	TOTAL T4 (µg/dL)	TSH3G (µIU/mL)	TOTAL T3 (ng/dL)
Pregnancy			
First Trimester	6.6 - 12.4	0.1 - 2.5	81 - 190
2nd Trimester	6.6 - 15.5	0.2 - 3.0	100 - 260
3rd Trimester	6.6 - 15.5	0.3 - 3.0	100 - 260

Below mentioned are the guidelines for age related reference ranges for T3 and T4.

T3 (ng/dL)	T4 (µg/dL)

Dr. Apeksha Sharma D.P.B,DNB (PATH) (Reg.no.MMC2008/06/2561) Consultant Pathologist
Dr. Deepak Sanghavi Chief Of Lab - Mumbai Reference Lab

Page 1 Of 2

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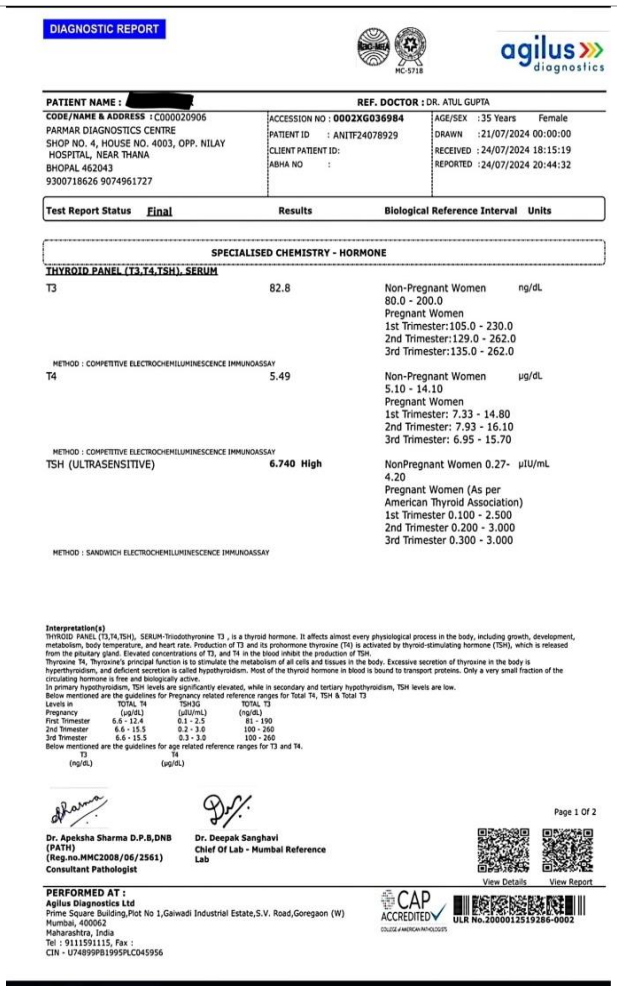
CIN - U74899PB1995PLC045956

CAP ACCREDITED ULR No.20000123786-0002

View Details View Report

Figure 1:
Thyroid profile report before treatment



DIAGNOSTIC REPORT

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PATIENT NAME : [redacted] REF. DOCTOR : DR. ATUL GUPTA

CODE/NAME & ADDRESS : C000020906
PARMAR DIAGNOSTICS CENTRE
SHOP NO. 4, HOUSE NO. 4003, OPP. NILAY HOSPITAL, NEAR THANA
BHOPAL 462043
9300718626 9074961727

ACCESSION NO : 0002XG036984
PATIENT ID : ANITF24078929
CLIENT PATIENT ID:
ABHA NO :

AGE/SEX : 35 Years Female
DRAWN : 21/07/2024 00:00:00
RECEIVED : 24/07/2024 18:15:19
REPORTED : 24/07/2024 20:44:32

Test Report Status Final	Results	Biological Reference Interval	Units

SPECIALISED CHEMISTRY - HORMONE

THYROID PANEL (T3,T4,TSH), SERUM

T3	82.8	Non-Pregnant Women 80.0 - 200.0 Pregnant Women 1st Trimester:105.0 - 230.0 2nd Trimester:129.0 - 262.0 3rd Trimester:135.0 - 262.0	ng/dL
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2nd Trimester	6.6 - 15.5	0.2 - 3.0	100 - 260
3rd Trimester	6.6 - 15.5	0.3 - 3.0	100 - 260

Below mentioned are the guidelines for age related reference ranges for T3 and T4.

T3 (ng/dL)	T4 (µg/dL)

Dr. Apeksha Sharma D.P.B,DNB (PATH) (Reg.no.MMC2008/06/2561) Consultant Pathologist
Dr. Deepak Sanghavi Chief Of Lab - Mumbai Reference Lab

Page 1 Of 2

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CAP ACCREDITED ULR No.20000125191266-0002

Figure 2:
Thyroid profile report after treatment

DISCUSSION

Hypothyroidism is the most prevalent thyroid disorder and ranks as the second most common endocrine disorder after diabetes mellitus globally. In *Ayurveda*, no specific term or clinical category exists for hypothyroidism, likely due to its biochemical diagnosis rather than solely relying on symptoms.[8] According to *Ayurvedic* principles, the pathogenesis of hypothyroidism can be viewed as a disturbance in *Agni*, particularly *Dhatwagni*, along with the concepts of *Ama* and *Avarana*. *Gandmala Kandan Rasa* is a good source of flavonoid epicatechin that stimulates D-Chiro-inositol action and helps improve post-receptor hypolipidemic action. It reduces intestinal absorption of glucose and acts as an effective hypoglycemic agent. It lowers serum lipid levels, especially triglycerides, and decreases hepatic glucose and fatty acids production. It provides antioxidant action and reduces blood glucose levels, which increases the basal metabolic rate and corrects the overall underactivity of the thyroid gland.[9] *Kanchanar Guggulu* is broadly used for patients facing problems such as swelling, tumours and cysts. Its key ingredients are *Bauhinia Variegata* and purified *Guggulu*. The therapeutic activities of *Bauhinia Variegata* are mainly due to the availability of multiple chemical compositions such as phenanthraquinones, flavonol-glycosides, triterpenes, saponins, flavonoids, bibenzyls and flavanones. [10] Therefore, *Bauhinia Variegata* is reported as an anti-inflammatory, anti-cancer, hypolipidemic, anti-bacterial, hepatoprotective, trypsin inhibitory and immunomodulatory agent.[11] *Varunadi Kwath*

possesses *Laghu-Ruksha Guna* (light to digest), *Tikta-Katu-Kashaya Rasa* (bitter-pungent-astringent taste), *Ushna Veerya* (hot potency), *Katu Vipaka* (pungent taste conversion after digestion) by which it has *Amapachana*, *Shothahara* (anti-inflammatory), *Lekhana-Chedana-Bhedana* (hypolipidemic), *Tridoshghna* (pacify body humour), *Mutral* (diuretics), *Anulomana* (purgative) and *Krimighna* (anti-micobial) properties.[12] In *Ayurveda*, the primary line of treatment for hypothyroidism is to do *Pachana* and *Anulomana*. *Pratiloma Gati* of *Vayu* creates obstacles in the proper functioning of *Agni* and *Samana Vayu*. Hence, it is necessary to normalise Vayu's direction, thereby maintaining the normalcy of *Agni* and *Samana Vayu*. In a nutshell, the primary intention of the treatment is to rejuvenate the blocked channels of circulation and to stop the continuation of the progressive pathological condition of hypothyroidism.

CONCLUSION

In the present case study, the drugs *Gandmala Kandan Rasa, Kanchanar Guggulu,* and *Varunadi Kwath* showed the properties of anti-inflammatory, hypolipidemic, pacify body humour, diuretics, purgative, anti-microbial, anti-inflammatory, anti-cancer, hypolipidemic, anti-bacterial, hepatoprotective, trypsin inhibitory and immunomodulator that collectively help to counteract the symptoms and pathogenesis of hypothyroidism. Though this case study was conducted on only one patient, a large sample size is necessary for further research.

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