

Efficacy of naturopathic and yogic interventions in morbid obesity: A case study

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KEY WORDS

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ABSTRACT

Obesity is an abnormal fat accumulation of the body which leads to detrimental health effects. Worldwide prevalence of obesity in ≥ 30 yrs aged subjects was 42 percent. This study shows the progressive start of obesity in an adult male and the role of Naturopathy and Yogic interventions (NYI) in morbid obesity. A 24-year-old self-employed catering employee underwent NYI for a period of 30 days. He was assessed for anthropometric measurements, haematological assessments and perceived stress scale. Statistical tests were analysed with the Data Analysis ToolPak. In this case, we have shown the progression of weight loss while we extend the duration of the NYI.

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Background

Obesity is a complex illness that involves excessive body fat and causes detrimental health effect. Obesity is raised as a significant community health concern. The prevalence of obesity is increasing world-wide [1] and it is about 12 percent [2]. According to a study conducted in India, 72.5 percent women and 1.1 percent men had obesity [3]. Obesity is the disparity of calorie consumption being more than the expenditure of calorie that leads to obesity [4]. This study represents the gradual start of obesity in an adult male and the efficacy of Naturopathic and Yogic interventions (NYI) in morbid obesity at PG Department, Government Yoga and Naturopathy Medical College and Hospital, Chennai, Tamilnadu.

Agreed normal quantification of overweight and obesity is known as Body mass Index (BMI). BMI threshold of 40 distinguishes people with morbid obesity and also confirms the increased risks for co-morbidities. This group is termed as "Morbid Obesity" [5].

Case presentation

A 24-year-old self-employed economically stable catering employee visited us at PG Department, Government Yoga, and Naturopathy Medical College and Hospital, Arumbakkam on January 17, 2020. He was presented with the complaints of palpitation, shortness of breath on exertion, extreme tiredness, increased sweating, swelling on both lower limbs over

the last 2 years associated with weight gain of about 46 kg within 4 to 5 years, which was progressive in nature. He was treated with a restricted diet in early 2019 under a dietician's supervision in Singapore and experienced minimal progress, but withdrawal from his diet further exacerbated the condition. He was underneath Ayurvedic pharmaceutical for 7 days though planning to our hospital.

He has been counting calories since childhood. Overall, he looked stressed and obese. His weight was 146 kg, 170 cm in height and his BMI was 50.5. His healthy weight should be 72 kg. Despite of excessive body weight, it is mandatory to encourage weight loss. He was a non-alcoholic and a non-smoker seemed well-oriented and mildly anaemic. His temperature who was normal, with respiratory rate of 19 beats per minute and blood pressure was 120/90 mmHg. His neck veins were not visible since buried under the dense fat neck pad, no thyroid enlargement and lymph node swelling but bilateral mild pedal oedema and gynaecomastia were noticed. On precordial inspection, apex beat was observed with no visible pulsation. On auscultation, heart rhythms were quiet. Examining other structures found no other abnormalities. Since he was on mixed diet with disturbed sleep schedule, he was advised to fill out perceived stress scale questionnaire (Cohen et al. 1983, American Sociological Association) to measure his stress level as a baseline assessment. He got admitted in the inpatient department to encourage himself into the lifestyle modifications for about 4 weeks. The first week strategy was made in behavioural

modification along with diet and yoga. Later on, he was imparted to a low carbohydrate, low protein and low fat diet. Finally, he was given moderate to severe yogic intervention. The objectives were exact, quantifiable, and realistic. He was provided with natural diet that comprised raw fruits, vegetable salads and sprouts along with fresh-fruit juice therapy. Simultaneously, he underwent NYI for the entire course of treatment period. A plant-based nutritious diet along with yoga were constituted this intervention. The NYI is reproduced in Table 1.

Table 1: Naturopathic and yogic intervention regimen

Treatments	Duration	Sessions
Hydrotherapy		
Warm water enema	Weekly once	4
Neutral hip bath	20 min	10
Cold leg pack	20 min	10
Cold abdominal Pack	20 min	10
Mud therapy		
Mud pack to abdomen and eyes	20 min	10
Mud application to both legs	20 min	10
Plantain leaf bath	40 min	4
Asanas		
Pawanamuktasan series I, II, III	20 min	10
Suryanamaskar	20 min	6
Tadasan	3 min	Daily
Ardhauattanpadasan	3 min	Daily
Viparitararani	3 min	Daily
Ardhasalabasan	3 min	Daily
Pawanamuktasan	3 min	Daily
Padahasthanan	3 min	Daily
Vyagrasan	3 min	Daily
Savasana	3 min	Daily
Pranayamas		
Nadishodana	5 min	Daily
Brahmari	5 min	Daily
Bastrika	5 min	Daily
Kapalbhati	5 min	Daily

The NYI protocols were observed associated with decreasing weight from 146 kg to 136 kg within 30 days. Within 10 days, with mild modification of diet and yoga, his weight reduced to 141.4 kg (a loss of 8.6 kg). After 19 days he weighed 139 kg meanwhile he was on complete diet modification but still moderate practice of yoga. Later on, after 20 days he underwent juice fasting and we noticed his weight as 138 kg. In the third week, we recorded his weight as 136 kg. His breathing pattern improved a lot which was testified during the strenuous activities. His blood pressure of 130/90 mmHg was reduced to 110/80 mmHg. Finally, 20 kg of weight loss was

observed. Post assessment of perceived stress scale was taken at the time of discharge and showed significant changes.

Progression of morbid obesity was detected by the anthropometric measurements and haematological assessments. The pre and post anthropometric measurements and haematological assessments are provided in the Tables 2 and 3.

Table 2: Pre and post anthropometric measurements

Parameters	Pre Assessment	Post Assessment
Weight (kg)	146	136
Height (cm)	170	170
Pulse rate (bpm)	88	72
Heart rate (bpm)	86	76
BMI (kg/m ²)	50.5	47.1
Mid arm circumference (cm)		
Right	41	40
Left	42	40
Mid-thigh circumference (cm)		
Right	75	70
Left	74	70
Perceived Stress Scale	27	10

Table 3: Pre and post haematological assessments

Parameters	Pre	Post
Fructosamine (µmol/L)	207.9	175
Blood ketone (mg/dL)	4.8	2
Serum Copper (µg/dL)	127.3	109.8
Serum Zinc (µg/dL)	88.3	44.2
Serum globulin (gm/dL)	3.62	3.32
HbA1c (%)	5.3	4.9
Average Blood Glucose (mg/dl)	105	94
Molybdenum (µg/l)	0.38	0.79
Beryllium (µg/l)	0.02	0.04
Est. glomerular filtration rate (mL/min/1.73 m ²)	126	125
Thyroid Profile		
Total triiodothyronine (T3)	132	139
Total thyroxine (T4)	8.3	8.4
Thyroid Stimulating Hormone (TSH)	1.47	2.07
Enzymatic Assay		
LP-PLA2 (U/L)	120	136
Homocysteine (µmol/L)	17.5	16.6
Cystatin C (mg/L)	1.31	1.28
Lipoprotein A (mg/dl)	7	11.1
25-OH vitamin D (Total) (ng/ml)	11.36	15.38
Vitamin B-12 (pg/ml)	266	185
Apolipoprotein-A1 (mg/dL)	109	110

Parameters	Pre	Post
Apolipoprotein-B (mg/dL)	81	83
Apo B/Apo A1 ratio	0.7	0.8
Iron (µg/dl)	114.7	68.1
Total iron binding capacity (µg/dl)	386	420
Transferrin saturation (%)	29.72	16.2
Ferritin (ng/ml)	106	50.9
Folate (ng/ml)	1.5	2.5
High sensitivity C reactive protein (mg/L)	19.9	21.9
Fasting Insulin (µU/mL)	27.7	17.3
Amylase (U/L)	42.8	42
Lipase (U/L)	24.8	30.9
Lipid Profile		
Total cholesterol (mg/dl)	154	156
HDL cholesterol-Direct (mg/dl)	38	43
LDL cholesterol (mg/dl)	100	104
Triglycerides (mg/dl)	172	72
LDL/HDL ratio	2.6	2.4
VLDL cholesterol (mg/dl)	34.32	14.38
Non-HDL cholesterol (mg/dl)	116.3	112.7

Discussion

In this case, we have shown the progression of weight loss while we extend the duration of the NYI. According to Jakicic et al. the weight loss was found increased in overweight and obese women with the inclusion of 200300 min of physical activity [6]. A short term study on walking with diet control and yoga, showed significant improvements in anthropometric parameters but the waist hip ratio has showed no change [7]. Absence of physical movement and life style are the aggravating factors. Anthropometric parameters demonstrated that the patient belonged to morbid obesity. Naturopathy helps to sustain the sense of steadiness between diet and medications. It assists fat digestion and thereby helps to lose fat accumulation. The moisture-mud packs relaxes the skin pores, relieves inner congestion, draws the blood to the skin surface, promotes heat radiation and also helps in elimination of waste matter. This also mobilizes the extra fat in the abdominal region and helps in eliminating it and thus good in administering for obesity [8]. Patient underwent two sessions of special yoga techniques along with pranayama practices and also given enema (weekly once). Finally, NYI benefited to maintain both physical and mental wellbeing.

Conclusion

This case report concludes the necessity of modification in diet pattern and the importance of physical activity. Spending

time in counselling the patient and bringing them back to natural diet intake and physical activity will solve the problem of weight gain. Further research is needed to address this aspect in future.

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Authors contributions

AH: Design of the study, treatment implementation and data collection.

YR: Manuscript writing and editing.

VV: Data analysis and interpretation of data

STV: Treatment planning and finalizing the manuscript.

Informed consent

Yes, while admitting the participant in inpatient department of GYNMC, Arumbakkam.

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Conflict of interest

The authors declare no conflict of interest.

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