



CASE REPORT

Integrated Ayurveda and Yoga Therapy in the Management of Obesity- A Case Report

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Abstract

Ati sthoulya or obesity, characterized by an excessive accumulation of adipose tissue, has become a global epidemic of modern times. A body mass index (BMI) above 25 is considered overweight, and over 30 is obese. Around the globe, over 4 million people die each year due to being overweight or obese.¹ Raised BMI is a risk factor for cardiovascular diseases, diabetes mellitus, musculoskeletal disorders, and some cancers, leading to high morbidity and mortality. The importance of prompt treatment of *Ati sthula* has been emphasized in Ayurveda.²

The management of obesity includes dietary and lifestyle modifications, cognitive and behavioral therapies, pharmacotherapy, and bariatric surgery. In Ayurveda, *Ati sthoulya* is managed by *vataghna kapha medohara annapana, rooksha ushna vasti, and teekshna rooksha udwarthana*. Practicing yoga helps in the physical, mental, emotional, and spiritual well-being of obese patients. For sustainable weight reduction and maintenance, the treatment should be focused on the grassroots level where the patient's diet and lifestyle should be given more importance.

This case report is an example of a sustainable weight-loss journey focusing more on aetiological factors. The 40-year-old male patient presented in the OPD with excessive weight gain, polyphagia, increased fatigue, and dyspnoea on exertion. He was diagnosed as *Ati sthoulya* and the treatment was planned mainly focusing on dietary and lifestyle modifications. Within 90 days, weight was reduced by 11.5 kilograms along with positive changes in other symptoms. This case report will help Ayurvedic doctors to focus on weight management from an aetiological point of view.

Introduction

Obesity is one facet of the dual challenges of malnutrition. In most parts of the world, more people are obese than people who are underweight. Previously overweight and obesity were problems that affected only high-income countries. But now, it is increasing at an alarming rate in low-income and middle-income countries. As per WHO, worldwide obesity has tripled since 1975. In 2016, 39% of adults aged 18 years and older were overweight,

and 650 million were obese. Today overweight and obesity kill more people than underweight. In India, as per National Family Health Survey-5(NFHS-5), conducted between 2019 and 2021, among adults aged 15- 29 years, 24% of women and 22.9% of men were overweight or obese. As per the same survey, in Kerala, among adults aged 15- 29 years, 38.1% of women and 36.4% of men were overweight or obese.³

Overweight and obesity are major risk factors for a number of chronic diseases, including cardiovascular diseases and stroke, which are the leading causes of death worldwide. Being overweight can also lead to diabetes, musculoskeletal disorders, and certain kinds of cancers. The risk of these lifestyle diseases increases even when a person is only slightly overweight and grows more serious as the body mass index (BMI) climbs. The surprising fact about all these conditions is that all of them can be prevented to a certain extent by merely controlling the weight gain.

In Ayurveda, obesity has been described under two headings *Ati Sthoulya* and *Medoroga*. Due to excessive intake of *guru, madhura, sheeta snigdha ahara, avyayama, avyavaya and, divaswapna, harshanitya and achintana, medo dhatu* increases. It can also happen due to *bijaswabhava*. Due to the obstruction of passage by *medas, vayu* moving in *koshta* increases the digestive fire (*athyagni*). It results in quick digestion and absorption of food. So, the person will feel hungry again and will eat more resulting in a vicious cycle of overeating and weight gain. *Medovridhi* leads to *amatva in medodhatu*, resulting in improper nourishment of *uttarottara dhatu*. *Meda* gets accumulated in *sarvanga*, especially in *sphik, udara and stana* resulting in *Ati sthoulya*.

Ayurvedic management of any disorder follows the principles of *Nidana parivarjana, Shodhana, and Shamana*. *Nidana parivarjana* in this case includes dietary and lifestyle modifications. *Sodhana* in *sthoulya* is to be done by *lekhana vasti* and *vamana* procedures. For *samana, pathyahara* and various medications are told. The treatment principles adopted in this case are more focused on *nidana parivarjana*. The benefit of this principle is that it destroys the possibility of the recurrence of the disease. Without using complex *Panchakarma* procedures like *Vasti* which requires hospitalization, a reduction of weight by 11.5 kilograms in 90 days is greatly promising.

Long-term practice of yoga which includes forward bending, twisting, and backward bending helps to reduce fat in the abdomen, hips, and other areas. It provides a perfect combination of cardio and muscle-strengthening exercises without using any equipment or much space.

Case History

A 40-year-old male working as a goldsmith presented in Swasthavritta OPD of Panchakarma Hospital, Poojappura, Thiruvananthapuram with increased weight gain during the past one and a half years. He also presented with polyphagia (*Kshut atimatram*), polydipsia (*pipasathiyogam*), excessive sweating, excessive sleep, body fatigue, and dyspnoea on exertion.

He was on a mixed diet. He had emotional stress but had no addictions. His bowel was constipated. The patient was of *kaphapitha prakruti*. The nature of his work was sedentary.

While examining the *nidanas* he was found to *have snigdha ahara seela* mainly in the form of fried items, *adhyasana sheela, avyayama, divaswapna, cheshta dwesha and sayya asana sukhe rata*.

In his family, his sister was also obese.

He has a history of appendectomy done 20 years back.

On examination, his weight was 80.3 kilograms, height was 159 cm and BMI was 31.8.

Vitals- heart rate- 75/minute, Respiratory rate- 18/ minute, Blood pressure was 134/87 mm of Hg. There was no cyanosis, pallor, icterus, or lymph adenopathy.

Investigations

Weight- 80.3 kilograms

BMI- 31.76

Waist circumference- 105 cm

Hip circumference-104 cm

Waist-to-hip ratio was 1.01

Mid-arm circumference- 32 cm

Skin fold thickness (Left triceps)- 24 mm

Body fat percentage- 33%

As his BMI was 31.76 and waist-to-hip ratio was 1.01, he was diagnosed as obese.

Lab investigations (14/04/2023)

Haemoglobin- 14.3 g%

FBS- 86mg%

Total cholesterol- 254 mg%

HDL- 76mg%

LDL 153 mg%

Triglycerides- 129mg%

Uric acid- 7.2 mg%

TFT within normal limits

T3- 1.11 ng/mL

T4- 8.46 µg/dL

TSH- 2.71µIU/MI

Table 1- Timeline of the case

Date	Relevant medical history and examination
2022 January	Weight was 70 kg (BMI- 27.7)
20/04/2023	Came to OPD Weight- 80.3 kg BMI 31.76 The diet chart was given.
21/04/2023 to 27/04/2023	Udwarthana with kolakulathadi churna for 7 days Following diet Attending 1-hour yoga session
28/04/2023 to 20/5/2023	Following Diet 1-hour yoga session On 20/05/2023 Weight- 75.0 kg BMI- 29.67
21/05/2023 to 20/06/2023	Following Diet 1-hour yoga session On 20/06/2023 Weight- 71.3 kg BMI- 28.20
21/06/2023 to 20/07/2023	Following Diet 1-hour yoga session On 20/07/2023 Weight- 68.8 kg BMI- 27.21

Management

A treatment protocol was planned based on Ayurvedic as well as yogic principles. It included 7 days of Udwarthana, an Ayurvedic diet, and 1 hour of yoga session. *Udwarthana* was done on the first 7 days of the treatment with *Kolakulathadi churna*, for 30 minutes from 8.30 AM to 9 AM. The yoga session of 1 hour was conducted between 11 AM to 12 Noon under supervision. Yogic procedures like *Kapalabhati*, *Suryanamskara*, *Asanas*, *Pranayama*, and

Table 2- Systemic examination

Cardiovascular system	Pulse rate- 75/ minute B.P- 134/87 mm Hg
Digestive system	Bowel constipated Gas trouble
Respiratory system	Respiratory rate- 18/ minute

Table 3- Ayurvedic parameters

Dasha	Kapha pradhana, tridosha
Dushya	Medo vridhi, Improper nourishment of all other dhatus.
Bala(strength)	Rogabala - Madhyama, Rogi bala - Madh-
Agni (digestive fire)	Vishamagni/Athyagni
Prakrithi (constitution)	Kapha pitta, Manasika (mental) - Rajasika
Srothas (channels)	Rasavaha, medovaha and raktava-hasrothas
Srotodushti type	Sanga
Site (Adhithana)	Whole body
Sadyasadhya (prognosis)	KrichraSadhya
Roganirnayam (Diagnosis)	Ati sthoulya

Meditation which have been shown to be effective in weight loss were incorporated into yoga sessions. Most of these techniques are also suggested by the Morarji Desai National Institute of Yoga in their obesity management protocol. The Ayurvedic diet included the food items and recipes told in Ayurvedic textbooks in the context of Ati sthoulya and Medoroga Chikitsa. The quantity of each food item was fixed following guidelines for a balanced diet for sedentary men prescribed by the 2020 Guidelines of the National Institute of Nutrition, Hyderabad.⁴

Table -4 Diet chart

Time	Meal	Food/Drink
6 AM		●Luke warm water (200ml) + Honey 5ml ⁵
8 AM	Breakfast	●Asana sara toya 200 ml ⁶ ●Ragi/Barley/ Jowar/Bajra/ChamaMultigrain/Wheat(90g) (Millet recipe to be used at least 4 days a week) Chapati- 3 numbers or Puttu- ½ kutti or Dosa - 3 numbers ●Green gram/Horse gram/ Dal(30g) Curry- 200 ml
11 AM		●Fruit- Pomegranate/Watermelon- 200g Gooseberry-1/Lemon juice- 1 teaspoon
1 PM	Lunch	●200 ml of Asana sara toya ●Red rice(90g) cooked – 200 ml bowl ●Green gram/Horse gram/ Dal(30g) curry- 200 ml ●Thoran (patola/kovakka/bittergourd/Banana flower)-100 ml bowl ●Moringa leaves/Amaranth (Green leafy vegetables) (100g) ●Heat fried brinjal (50g) ⁷ ●Buttermilk 50 ml
5 PM		●Saktu(Malarppodi) 4 teaspoon + Buttermilk – 200 ml + 5g Chavyadi churna ⁸
7 PM	Dinner	●Asana sara toya - 200ml ●Fried broken wheat(90g) porridge - 200 ml bowl ⁹ ●Green gram/Horse gram/ Dal(30g) curry- 200 ml ●Steamed Vegetable salad- 200g (cucumber, carrot, tomato, beetroot, lemon)

Table-5 Yoga protocol

Yoga session of 1 hour included	
1.	Prayer
2.	Kapalabhati- 5 rounds of 20 strokes (started with 3 rounds of 10 strokes and reached 5 rounds of 20 strokes by the end of 2 weeks)
3.	Loosening exercises- 10 minutes
4.	Sooryanamaskara- 10 rounds (started with 3 rounds and reached 10 rounds by the end of 2 weeks)
5.	Savasana and Deep relaxation technique- 10 minutes
6.	Dynamic Asanas- 10 Rounds of each Asanas- Started with 3 rounds and reached 10 rounds by the end of 2 weeks) <ul style="list-style-type: none"> ● Tadasanas ● Trikonasana ● Katichakrasana ● Uthanapadasana ● Pavanamuktasana ● Noukasana ● Dhanurasana ● Paschimottanasana ● Bhujangasana ● Salabhasana ● Chakkichalasan ● Cycling ● Marjari asana
7.	Kapalabhati- 5 rounds of 20 strokes (started with 3 rounds of 10 strokes and reached 5 rounds of 20 strokes by the end of 2 weeks)
8.	Nadisudhipranayama- 5 rounds (Started with 3 rounds and reached 5 rounds by the end of 1 week)
9.	Sooryabhedani pranayama- 10 rounds (started with 5 rounds and reached 10 rounds by the end of 1 week)
10.	Om Chanting Meditation
11.	Closing Prayer

Table- 6- Timeline of treatment

Date	Treatment
20/04/2023	Came to OPD Weight- 80.3 kg BMI 31.76 The diet chart was given.
21/04/2023 to 27/04/2023	Udwarthana with Kolakulathadi churna for 7 days Following diet Attending 1-hour yoga session
28/04/2023 to 20/05/2023	Following Diet 1-hour yoga session
21/05/2023 to 20/06/2023	Following Diet 1-hour yoga session
21/06/2023 to 20/07/2023	Following Diet 1-hour yoga session

Table -7 Outcome assessment

	Before treatment (20/04/2023)	After 30 days (20/05/2023)	After 60 days (20/06/2023)	After 90 days (20/07/2023)
Weight	80.3 kg	75.0 kg	71.3 kg	68.8 kg
BMI	31.76	29.67	28.20	27.21
Waist circumference	105 cm	98 cm	93 cm	89 cm
Hip circumference	104 cm	101 cm	98 cm	96 cm
Waist-to-hip ratio	1.01	0.97	0.95	0.93
Mid arm circumference (Left arm)	32 cm	31 cm	30 cm	29 cm
Skin fold thickness (left triceps)	24 mm	20 mm	16 mm	12 mm
Body fat percentage	33%	30.9%	28.9%	28.1%

Table-8 Lab investigations

	Before treatment(14/04/2023)	After treatment (13/6/2023)
Total cholesterol	254 mg%	210 mg%
HDL	76mg%	76 mg%
LDL	153 mg%	117 mg%
Triglycerides	129mg%	87 mg%
Uric acid	7.2 mg%	6.7 mg%

Table-9 VERBAL DESCRIPTIVE SCALE FOR ASSESSMENT OF STHOULYA- Ayurvedic parameters

SI No	Clinical feature	Nil	Mild	Moderate	Severe	Before treatment (20/04/2023)	After 30 days (20/05/2023)	After 60 days (20/06/2023)
1.	Polyphagia(Kshut atimatra)	0	1	2	3	2	1	0
2.	Polydipsia (Pipasatiyoga)	0	1	2	3	3	0	0
3.	Excess sweating (Swedabhada)	0	1	2	3	3	3	3
4.	Excess sleep (Nidratiyoga)	0	1	2	3	3	1	0
5.	Body fatigue (Alasya)	0	1	2	3	3	1	0
6.	Loss of libido (Krichravayavayata)	0	1	2	3	0	0	0
7.	Dyspnoea on exertion (Javaparodha)	0	1	2	3	3	1	0

Discussion

In *Ayurveda*, *Ati sthoulya* is considered a condition in which treatment is difficult. Most of the time the etiology of *Ati sthoulya* is an improper diet and lifestyle of the patient. If the treatment is designed only based on medicine or complex procedures, the patient may go back to the previous weight once the treatment is stopped. So rather than concentrating on medicines, grassroots-level interventions like dietary and lifestyle modifications are to be implemented which should be feasible for the patient. In this case, such an intervention was done which gave promising results.

Over ninety days there has been an 11.5 kg reduction in weight without using any major medications. The reduction in BMI was 4.55. The total cholesterol level of 254 mg% was reduced to 210 mg% within 60 days. This shows the relevance of dietary and lifestyle interventions in dyslipidemia as well. Serum uric acid level of 7.2 mg% was reduced to 6.7 mg%.

The initial *Udwarthana with Kolakulathadi churna* helped in a quick *kaphahara and medohara* action on the body.¹⁰

The yoga techniques adopted here also helped to a great extent. The loosening exercises, 10 rounds of *Surya Namaskara*, and all the dynamic asanas formed a perfect combination of cardio and muscle-strengthening exercises. *Kapalabhati* has been proven to reduce waist circumference

and hip circumference. *Kapalabhati* increases the Basal Metabolic Rate which will cause an increase in calorie consumption and decrease in fat deposition and thus reduction in weight.¹¹ *Suryanamaskara* is a yogic procedure that has been found effective in improving cardiovascular fitness and weight management.¹² *Pranayama* and *Om* chanting meditation helped the patient at his mental and emotional level which is very crucial for sustainable behavioral changes for weight loss.¹³

A systematic review and meta-analysis have shown that the consumption of millet was beneficial in reducing total cholesterol, triglycerides, and low-density lipoproteins.¹⁴ A diet with a high amount of fiber contributes to the maintenance of the gut microbiome which is essential in weight management.¹⁵ Fruits, vegetables, green leafy vegetables, and pulses like *Mudga*, *Kulatha* used in this diet have provided a sufficient amount of fiber.

While assessing the Ayurvedic parameters, there was a significant reduction in the symptoms. Polyphagia, polydipsia, excessive sleep, fatigue, and dyspnoea on exertion were completely relieved within 90 days.

Conclusion

Ayurvedic dietary and lifestyle modifications along with yoga used here were found to be very effective in reducing the weight of the patient in a healthy and sustainable manner. The dietary intervention has helped the patient

with a better selection of food items without staying starved. This integrated Ayurveda and Yoga therapy approach has not only helped in reducing weight but has also helped in relieving other associated symptoms. The patient feels more energetic and confident now. The Ayurvedic and yogic principles adopted here for the management of obesity are ideal for sustainable results to be achieved in weight management.

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LIMITATIONS OF THE STUDY

As it is a single case study, statistical analysis was not done. A large sample size study should be conducted to validate the data.

CONSENT OF PATIENT

Consent of the patient was obtained for treatment and publication of case.

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