



Case Study

INTEGRATED AYURVEDIC STRATEGIES FOR OBESITY: A CASE REPORT OF MULTIDIMENSIONAL CARE

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ABSTRACT

Worldwide obesity has nearly doubled between 1990 and 2022. In 2022, over 890 million people over 18 years and older were found to be obese. Obesity is a pathological condition characterized by excessive accumulation of body fat leading to detrimental effects on health. In Ayurveda, obesity has been described as *Sthoulya* or *Medoroga* in *Santarpanjanya Vikara* i.e., the disease caused by over nourishment. A single case study of 45 year old female patient with complaints of increased body weight for 5 years. Associated with exertion on minimal work and pain in lumbo-sacral region, both knee joints. Patient had no history of hypertension, diabetes and hypothyroidism. Considering other biochemical and physical examinations with BMI (38.3Kg/m²) patient was diagnosed as Obese Class II. After detailed history taking and thorough examinations patient was planned to intervene with oral medications (*Panchatikta Ghreeta-Guggulu*, *Arogyavardhini Vati*, *Vidangadi Lauha* and *Varunadi Kashayam*), *Udvartan* (massage with therapeutic powder), *Pathyaahar* (therapeutic diet- *Vyoshadi Saktu*) and *Yoga* sessions for 10 days. The patient was advised to continue with the same medications, *Pathyaahar* and *Yogasana* for 3 months. This integrated treatment approach yielded desired and significant improvement in the condition of the patient. This case demonstrates safe and convenient approach in the management of Obesity as per Ayurveda and paves way for further research.

INTRODUCTION

Worldwide obesity has nearly doubled between 1990 and 2022. About 16% of the adult and older population worldwide were Obese in 2022 which is over 890 million [1]. Obesity is a pathologic condition caused by an imbalance between food consumption and energy expenditure leading to excessive accumulation of fat in adipose tissue, which causes adipose cells enlargement, increase in adipose cell number and fat pad weight [2]. Obesity is one among the metabolic disorder which has high mortality and morbidity rate. It is a powerful amplifier for metabolic syndrome [3].

In Ayurveda, obesity has been described as *Sthoulya* or *Medoroga* in *Santarpanotha Vikara*. i.e., the disease caused by over nourishment. In a balanced state, *Kapha* (one of the three humours) gives nourishment to the tissues and govern all organs. However, when aggravates accumulates in weaker channels of the body, causing their blockage [4]. Pathogenesis of *Sthoulya* states that increased *Medo Dhatu* (one of the 7 tissues) blocks the *Medo Vaha Srotas* (fat carrying channels) and *Vata Marga* (channels to carry nourishment) gets obstructed. *Vata* hyper activates *Jatharagni* (digestive fire), which increases the appetite of patient, but the BMR (Basal metabolic rate) is very low, as the *Dhatvagni* (metabolism) level at *Meda* (fat tissue) is low. The *Medo Dhatvagni Mandya* (improper fat metabolism) results abnormal *Upachaya* (nourishment) of *Medo dhatu*, which further leads into deprivation of nourishment to *Uttara Dhatu* (subsequent tissue). *Ati Sthoulya* is a *Santarpana Janya Vyadhi* i.e., disturbance

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between energy consumption and expenditure takes place leading to *Sthoulya* [5].

Patient Information

A 45-year-old female patient came to OPD of Kayachikitsa with complaints of increased body weight for 5 years. The patient presented all classical signs of *Sthaulya* along with pain over lumbo-sacral region and both knee joints. Past history revealed that patient was not a known case of hypertension, diabetes mellitus, bronchial asthma, hypothyroidism, PCOS. There is no family history of increased weight and obesity from her maternal side. *Astavidha Pariksha*, *Dashavidha Pariksha*, systemic and general physical examinations with anthropometry of the patient was done. Changes were seen in biochemical tests with special reference to lipid profile. Considering the examinations, BMI (38.3Kg/m²) patient was diagnosed as Obese Class II.

Clinical Findings

Anthropometry, bodyweight and BMI recorded as Blood pressure- 130/80mm of Hg, Pulse- 80 bpm, Height- 154.94cm, Weight- 92kg, BMI- 38.3kg/m², Chest circumference- 130cm, Abdominal circumference- 126.5cm, Mid arm circumference- 31.5cm (right and left), Mid-thigh circumference - 54.5cm (right), 53cm (left), Waist circumference- 132cm, Hip circumference- 130cm. Laboratory findings includes Plasma Glucose (F) 80mg/dl, Plasma

Glucose (PP)-110mg /dl, Serum creatinine -1.2mg /dl, Total Cholesterol - 193.26mg/dl, H.D.L Cholesterol-155.15mg/dl, L.D.L Cholesterol - 102.77mg/dl, V.L.D.L Cholesterol- 35.34 mg/dl, Tglycerides- 176.73 mg/dl.

Dashavidh Pariksha (tenfold examination), *Astavidh Pariksha* (eight-fold examination) were done on the patient. *Vikrita Dosha* (one which vitiates) was *Kapha*, *Dushyas* (which gets vitiates) were found to be *Rasa* (circulatory fluid), *Mamsa* (muscle), *Meda* (fat) and *Asthi* (bone), *Satmya* (compatibility), *Samhanan* (built), *Sara* (essence) was found to be *Madhyam* (moderate), *Avyavaran Shakti* (digestive capacity) was *Pravar* (good) and *Vyayam Shakti* was *Avara* (poor), *Satwa* (mental strength) *avara*, *Praman* (height) and *Vaya* (age) was *Madhyam*. *Ahaara* mostly *Mishra Ahara* (mixed diet, non-veg), *Vihara* (regimen) *Avyayama* (no physical exercise), *Divaswapna* (sleeping at day time), *Ati Kshudha* (excessive hunger), *Ati Trishna* (excessive thirst), *Mala-Mutra* (bowel and urine) *Vega* (output) was normal. In systemic examination, no evident changes were noted.

Timeline: Details of the timeline are mentioned in table 3

Diagnostic Assessment: Based upon the International Classification of adult underweight, overweight and obesity according to BMI and *Lakshanas* (symptoms) of *Sthaulya* mentioned in classics.

Table 1: The International Classification of adult underweight, overweight and obesity according to BMI [6]

Classification	BMI (kg/m ²)	
	Principal cut-off points	Additional cut-off points
Underweight	<18.50	<18.50
Severe thinness	<16.00	<16.00
Moderate thinness	16.00 - 16.99	16.00 - 16.99
Mild thinness	17.00 - 18.49	17.00 - 18.49
Normal range	18.50 - 24.99	18.50 - 22.99
		23.00 - 24.99
Overweight	≥25.00	≥25.00
Pre-obese	25.00 - 29.99	25.00 - 27.49
		27.50 - 29.99
Obese	≥30.00	≥30.00
Obese class I	30.00 - 34.99	30.00 - 32.49
		32.50 - 34.99
Obese class II	35.00 - 39.99	35.00 - 37.49
		37.50 - 39.99
Obese class III	≥40.00	≥40.00

Table 2: Assessment parameter as per Classics [7,8]

S.No	Cardinal signs and symptoms	Absent	Mild	Moderate	Severe
1	<i>Chalaspikudarastana</i> (Pendulous buttock, abdomen and breast)	0	+	++	+++
2	<i>Javoparodha</i> (Hampering in movement)	0	+	++	+++
3	<i>Daurbalya</i> (General weakness)	+	++	+++	+++
4	<i>Daurgandhya</i> (Bad body odour)	+	++	+++	+++
5	<i>Swedabadha</i> (Excessive Sweating)	+	++	+++	+++
6	<i>KshudhatiMaatra</i> (Excessive Hunger)	+	++	+++	+++
7	<i>Pipaasatiyoga</i> (Excessive thirst)	+	++	+++	+++
8	<i>Kshudraswasa</i> (Dyspnoea on exertion)	+	++	+++	+++
9	<i>Krathan</i> (snoring)	+	++	+++	+++

* The gradation was formulated at the department to evaluate the efficacy of intervention in the management of *Sthaulya*.

Therapeutic Interventions

Table 3: Treatment schedule adapted from 017-08-2023 to 26-08-2023

Days/Date		Intervention	Observation
Day 1 August 17- 2023	Admitted in IPD Oral medication started	1. <i>Pancha Tikta Ghrita Guggulu</i> 250 mg+ <i>Vidangadi Lauha</i> 250mg+ <i>Arogyavardhini</i> <i>Vati</i> 125 mg with 2. <i>Varunadi Kashaya</i> 20ml with 60ml-80ml of water to be taken at 6.45 am & 6.45pm	Weight 92 kg, BMI 38.3kg/m ² Severe pain in knee joints and lumbosacral region Difficulty in walking
August 18- 24, 2023	<i>Udwartana</i> and <i>Bhaspa Sweda</i>	<i>Kulattha</i> , <i>Sarsap</i> and <i>Triphala Churna</i> (powder) for 45 minutes	Pain in joints partially got reduced, patient walks with difficulty with support
August 18, 20, 22, 24-	<i>Janu basti</i> and <i>Nadi swedan</i>	<i>Janu Basti</i> with <i>Saindhavadi Taila</i> for 30 minutes and <i>Nadi Swedan</i> with <i>Dashamula</i> <i>Kwath</i> 15 minutes	After 7 th day of treatment pain reduced, patient walks slowly with support
August 19, 21, 23, 25	<i>Kati basti</i> , <i>Nadi</i> <i>swedan</i>	<i>Janu Basti</i> with <i>Saindhavadi Taila</i> for 30 minutes and <i>Nadi Swedan</i> with <i>Dashamula</i> <i>Kwath</i> 15 minutes	After 7 th day of treatment pain reduced, patient walks slowly with support.
August 27- 2023	Patient was discharged	Asked to continue with the same medication, <i>Pathyahara</i> (Therapeutic diet) and <i>Yogasana</i> (Yoga) for a month	Weight-86 kg, BMI-35.79 Patient walks slowly without support, pain reduced Advised to come for follow up after 1 month
September 26-2023		Advised to continue with same medications, <i>Pathyahara</i> , <i>Yogasana</i> for 2 months	Weight -84kg, BMI- 35.44 Patient started morning walk with no fresh complaints of severe pain in knee joints.
November 25-2023			Weight-80 kg, BMI-33.75 Pain subsided; patient started doing morning walk for 30 minutes every day

Table 4: Scheduled Diet During and After Treatment

Day 1-6	<ul style="list-style-type: none"> 7.00am - <i>Vyosadi Saktu</i> (gruel) 30 gm <i>Yava</i> (wheat) powder + 3gm (<i>Vyoshadya Churna</i>) + 5 ml till oil + 5ml ghee + 10ml honey 10.00am- 100gm fruit (guava/papaya) 1.30am - <i>Jeerak siddha Takra</i>- 200ml (butter milk processed with <i>Cuminum cyminum</i>) 1.30pm - 2 <i>Yava Rotika</i> (wheat chapatti) and boiled veg (150gm) + <i>Muga Yusa</i> (<i>Phaseolus mungo</i>) -150ml 4.30 pm - Green salad -150 gm 7.30 pm - 2 <i>Yava Rottika</i> and vegetable stew (150gm) + <i>Mudga Yusa</i> (150 ml)
Day 7-10	<ul style="list-style-type: none"> 7.00am - <i>Vyosadi Saktu</i> 50 gm <i>Yava</i> (wheat) powder + 5gm (<i>Vyoshadya Churna</i>) + 5ml till oil + 5ml ghee + 15ml honey 10.00am- 100gm fruit (guava/papaya) 11.30am - <i>Jeerak Siddha Takra</i> - 250ml (butter milk processed with <i>Cuminum cyminum</i>) 1.30pm - 2 <i>Yava Rotika</i> & boiled veg (150gm) + <i>Mudga Yusha</i> - 200ml 4.30 pm - Green salad- 200gm 7.30 pm - 2 <i>Yava Rotika</i> & boiled veg (200gm) + <i>Mudga Yusa</i> 200 ml.

Table 5: Asanas, Pranayama advised to the patient

<i>Yogasana</i>	Duration
Warm up exercise	3 minutes
<i>Ardhahalasana</i> (half plow pose)	30 sec to 1 minute
<i>Makarkridasana</i> (1-2) (crocodile pose)	30 sec to 1 minute
<i>Niralambasana</i> (neck stretching pose)	30 sec to 1 minute
<i>Bhujangasana</i> (cobra pose)	30 sec to 1 minute
<i>Ardha shalabhasana</i> (half locust pose)	30 sec to 1 minute
<i>Pranayam</i>	15 minutes
<i>Kapal bhati, Anuloma-viloma, Bhrumri</i>	Each for 5 minutes

Follow Up and Outcome

On the day of admission dated 17.08.2023 patient's weight was 92 kg, which got reduced to 86 kg at the time of discharge on 27.08.2023. The results showed that there was significant reduction of weight (6 kgs) in just 10 days. Patient was discharged on 27th August i.e., on the 11th day. She was advised to continue the oral medicines, diet and exercises (*Yogasanas, Pranayama*) for 30 days and asked to visit for follow up. Patient was advised to continue with same treatment for another 2 months. [Table 6]

Table 6: Effect of treatment/intervention on assessment parameter

S.No	Cardinal signs and symptoms	Day 1	Day2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8	Day 9	Day 10	1 st follow up	2 nd follow up
1	<i>Chalaspikudarasta na</i> (Pendulous buttock, abdomen and breast)	+++	+++	+++	+++	+++	+++	++	++	++	++	+	+
2	<i>Javoparodha</i> (Hampering in movement)	+++	+++	+++	+++	++	++	+	+	+	0	0	0
3	<i>Daurbalya</i> (General weakness)	+++	+++	+++	++	++	+	+	0	0	0	0	0
4	<i>Daurgandhya</i> (Bad body odour)	+++	+++	+++	++	++	+	+	+	+	0	0	0

5	Swedabadha (Excessive Sweating)	+++	+++	+++	++	++	++	+	+	+	+	+	0
6	Kshudhati Maatra (Excessive Hunger)	+++	+++	+++	+++	++	++	+	+	0	0	0	0
7	Pipaasatiyoga (Excessive thirst)	+++	+++	+++	+++	++	++	+	+	0	0	0	0
8	Kshudraswasa (Dyspnoea on exertion)	+++	+++	+++	+++	++	++	+	+	+	0	0	0
9	Krathan (snoring)	+++	+++	+++	+++	++	++	++	+	+	+	+	+
10	Pain in joints	+++	+++	++	++	++	++	+	+	+	0	0	0
11	Weight (Kg)	92	-	-	-	-	-	-	-	-	86	84	80
12	BMI (kg/m ²)	38.3	-	-	-	-	-	-	-	-	35.79	35.44	33.75

DISCUSSION

The treatment of *Sthaulya* has been planned such way that *Ausadh* (medicine), *Ahara* (diet) and *Vihar* (regimen) regulates *Agni* (digestion) as *Sthaulya* presents complaints of excessive hunger and thirst [9]. According to Ashtanga Hridayakara, Guru (heavy) and *Atarpana* (non-nourishing) elements are prescribed for the treatment of Obesity and the opposite is advised for the treatment of emaciation, which is stated as “*Guru Chaatarpanam Sthoole Vipareetam Hitam Krushe.*” Thus, *Guru* property alleviates *Teekshnagni* (increased digestive fire) and *Koshthagata Vata* (*Vayu* of digestive system) and *Atarpan* properties like *Lekhana* (scraping), *Rookshana* (drying), *Chedana* (penetrating) etc reduce *Meda Dhatu*. Hence, management of *Sthaulya Chikitsa*, lies in balancing the *Samana Vayu* (*Vayu* helps in digestion), *Pachaka Pitta* (digestive enzyme) and *Kledaka Kapha* (which softens food particles for digestion) to bring equilibrium of *Medo Dhatu* by increasing *Medo Dhatvagni* (fat metabolism) [10].

Probable mode of action

Oral medicine

Most of the ingredients of *Panchatikta Ghrita Guggulu* have *Tikta Rasa* (bitter taste), *Ushna Virya* (hot potency) and *Madhura* (sweet) and *Katu* (pungent) *Vipaka* (bio-transformation). The *Tikta Rasa* increase the *Dhatvagni* (metabolism). As *Dhatvagni* increase, nutrition of all the *Dhatus* will be increased. As a result, *Asthi Dhatu* and *Majja Dhatu Kshaya* will be decreased. *Tikta Rasa* also possess *Lekhana* property which helps in shedding excess weight, which eventually helps in pain management. *Guggulu* has properties like *Usna*, *Ruksha*, *Yvishada*, thus it helps in *Vatashaman* (pain management) as well as reducing *Meda*. Pharmacologically *Guggulu* has the properties of anti-inflammatory, immunomodulatory and anti-

lipidaemic action [11]. *Vidanga Lauha* predominantly has *Tikta-Kashaya Rasa*, *Laghu-Ruksha Guna*, *Sheeta Veerya* and *Madidhura Vipaka*. *Vidangadi Lauha* has properties like dislipidemic, hypoglycaemic, prevention of platelet aggregation and, anti-obesity, endothelial dysfunction, oxidative stress, systemic inflammation [12]. The formulation *Arogyavardhini Vati* contains *Tikta-Katu Rasa* (taste) predominance, *Laghu* (light), *Ruksha* (dry), *Sukshma Guna* (penetrating capacity) and *Ushna Veerya* (hot potency). That is why it has *Deepan* (stimulates metabolism), *Pachana* (digestion), *Shrotosodhana* (cleanses channels) and *Lekhana* (scapping) properties. It corrects all three *Agni* specially *Dhatwagni Mandyta* (improper metabolism) and reduces the *Ama* (toxin) and *Abadha Meda Dhatu* (fat) deposition [13]. The ingredients of *Varanadi Kashayam*, having the properties of *Ushna*, *Teekshna Guna*, *Ushna Virya*, *Katu Vipak*, *Teekta*, *Katu Rasa*, effective in alleviating conditions of *Kapha Meda Vriddhi*, *Mandagni*. Hence, it has anti-inflammatory, anti-adipogenic and anti-obesity action [2].

Bahya Upachar (External therapy): **Udvartan** alleviates vitiation of *Kapha Dosha*, reduces excess of fat in the body, corrects *Vata Dosha*, Increases the stability of extremities, brings lightness in the body, eliminates the bad body odour and reduce excessive sweating [14].

Snehana pacifies the *Vata*, softens the body and eliminates the accumulated *Malas* (waste products). *Janu Basti* and *Kati Basti* with *Saindhavadi* oil acted on pacifying aggravated *Kapha* and *Vata*. Cumulative action of *Kanji* (fermented rice water) and *Saindhav* (rock salt) resulted in clearing channels and absorption of the oil which further subsided pain and inflammation [15].

Nadi Swedana with *Dashamula Kashayam* relieves the stiffness, swelling and pain in the joints. By the process of *Snehana* and *Swedana* pores of skin become dilated and local circulation of blood will increase. Thus, the medicines applied locally is also absorbed by the skin and exerts its effects locally [16].

Pathyahaara (Therapeutic diet)

Vyoshadi Saktu^[17]: The drugs such as *Trikatu*, *Triphala*, *Vidanga*, *Patha*, *Sthiraa*, *Chitraka*, *Jeeraka*, *Dhanyak* mostly *Katu*, *Tikta*, *Kashaya rasa*, *Ushna virya* and *Katuvipaka*, *Rooksha*, *Sukshma* and *Ushna* in *guna* (quality), thus penetrates into the deeper channels and remove *Sanga* (obstruction). *Vyoshadi Saktu* mostly consist of *Yava Saktu*, which is again *Kapha-Pittahara*, *Rooksha* and possess *Lekhana* property. Thus, this *Pathyahara* is ideal for patients of Obesity.

Yogasana: Regular practice of *Yogasana* reduces weight and improves body composition. By reducing weight and achieving fat loss, associated complications related to obesity such as pain in joints, excessive exertion etc can be curbed [18].

CONCLUSION

"Globesity" is taking over many parts of the world. "WHO Global Strategy on Diet, Physical Activity and Health" describes the actions needed to support healthy diets and regular physical activity. Based on the signs and symptoms, *Udwartan* and *Sthanik Swedana* procedures were planned followed by *Ahara*, *Vihara* and *Aushada sevan*. Implemented treatment showed remarkable result in *Sthaulya* patient by reducing the weight as well as pain in knee joints.

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