



## Research Article

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### POSITIVE INFLUENCE OF DIET AND LIFESTYLE IN MANAGEMENT OF OBESITY: A CASE STUDY

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#### ABSTRACT

This is the era of high prevalence of non communicable diseases. Obesity is one such non communicable disease, is caused by a combination of unhealthy food habits (ahara), sedentary lifestyle (vihara) and genetic susceptibility (beeja dosha). Obesity is a health related condition mimicking Sthoulya. Though it has a hereditary cause, manipulation of diet and lifestyle can keep it at bay. Ayurveda with its holistic approach can help in this condition with its unique way of lifestyle and dietary manipulation. Objective: To evaluate the influence of diet & lifestyle in management of obesity using with clinical features and laboratory investigation. Methods: It is a single case of obesity was suggested a modified diet and lifestyle for 7 days after admitting in hospital. This included low carbohydrate, low fat, fiber rich diet, exercise, udvartana followed by ushna kashaya pariseka based on ayurvedic principles. Anthropometry and serum lipid profile were done before and after treatment. Outcome: Anthropometric measurement was reduced and lipid profile was significantly changed from baseline to end of the treatment.

**Keywords:** Obesity, Ayurveda, Diet, Exercise, Udvartana

#### INTRODUCTION

Obesity is a foremost health care challenge in the 21st century. According to WHO obesity is one of the most neglected public health problems in developed and developing countries. There has been an increase in the predominance of obesity in India particularly in urban population.<sup>1</sup> In India, overweight and obesity has reached epidemic proportions affecting 5% of countries population. In 2014 more than 1.9 billion adults of age above 18 years and older, were overweight. Overall, about 13% of the world population were obese. 39% of adults aged 18 years and over (38% of men and 40% of women) were overweight.<sup>2</sup> According to National Family Health Survey-3, 15% of females and 14% males are considered obese in India. India is the third most obese country in world.

Obesity is an upsetting and problematic disease, which is the step of various non communicable diseases like Hypertension, Diabetes mellitus, Atherosclerosis, Ischemic heart disease, Cancer etc. It influences morbidity and mortality rates through various complications touching various body systems.

Obesity is mimicking as Sthoulya. Ayurveda has described Sthoulya as a Astaninditiya purusha (condemned body types).<sup>3</sup> Acharyas has been described as medoroga in Santarpanjanya vyadhi<sup>4</sup>, that is caused by over nourishment of the body. Atisthoulya is a condition in where due to excessive accumulation of medadhatu (adipose tissue) and mamsadhatu (muscle tissue) leading a flabbiness of hip, abdomen, breast<sup>5</sup> It is also known as Kaphaja nanatmaja vyadhi.

Medadhatu plays a main role in pathogenesis of Sthoulya. It is a one of the important dhatu in human body. In case of sthoulya

person, medovaha srotas (channels of fat) and medadhatu are affected due to intake of excess madhura (sweet), snigdha (unctuous) ahara. Nidana of sthoulya are categorized under four groups:<sup>6</sup>

1. Aharatmaka nidana
2. Viharatmaka nidana
3. Manasa nidana
4. Anya nidana

Over nourishment of medadhatu causes malnutrition to all other dhatus. Agnimandya of dhatvagni is another cause of obesity. Sthoulya are sadatura, so needs regular management and it develops due to faulty lifestyle, for its alteration, prevention and treatment is important. In Ayurveda classics acharya told it can be managed by nidana parivarjana, guru cha atarpana chikitsa, langhana chikitsa. Charaka acharya has mentioned "Guru Cha Atarpana" is the line of treatment.<sup>7</sup> He has mentioned rooksha udvartana and vyayama as pathya for sthoulya<sup>8</sup>.

#### PATIENT INFORMATION

A 30 year old male subject, hindu by religion, who was businessman by occupation, reported to Swasthavritta OPD Shri Dharmasthala Manjunatheshwara College of Ayurveda and Hospital, Hassan, Karnataka and admitted in In patient department (IP no-031128) with complaints of increased body weight since 6 years, associated with c/o weakness and lethargy. Subject was not a known case of Hypertension, type 2 Diabetes Mellitus. This subject has not visited any other health care centre for this problem. The patient's brother complained of watching TV for long times, improper routine of sleeping and intake of outside food (spicy, oily foods, non-veg etc) weekly 3-4 days. After taking the detailed history, the consent was taken from the

subject and study was in accordance with ICH GCP guidelines. Ethical clearance for the study has been obtained from Institutional ethics committee of SDM college of Ayurveda and Hospital, Hassan (SDM/IEC/83/2017-2018).

### CLINICAL FINDINGS

On examination patient was weighing 101kg, height 169 cm, his vitals were within normal limits. Systemic and general examination was done.

**DIAGNOSTIC ASSESSMENT:** Based on the symptoms presented the diagnosis was made to be sthoulya (obesity). Laboratory investigation like blood routine shows normal result, but marked raise in lipid profile.

### THERAPEUTIC INTERVENTION

The treatment plan included:

- Udvartana with udvartana choorna(powder) and Pariselka with Dashamoola kwatha choorna kashaya

- Diet and Vyayama(exercise ) were advices as a part of treatment.

**Duration:** 07 days. The diet was planned based on the principle of guru cha atarpana.

Patient was administered with amla (*Indian gooseberry*) juice 20ml with 60ml of lukewarm twice a day in empty stomach for 7 days. In this time patient was administered with sarvanga udvartana with udvartana choorna and parisheka (fomentation) done with Dashamoola kwatha (medicated hot water)for samyak rukshana lakshana. Kaphah-medohara ahara (hypolipidemic diet) and vyayama (langhana) were advised in this period.

### RESULT

Due to lifestyle modification there was decreased in the weight and BMI. Patient's weight was reduced to 98 kg at the time of discharge. Over all patients felt better symptomatically. On discharge, medicine advised were amla juice 20 ml with 60ml lukewarm water before food twice a day in empty stomach, Decrin plus capsule 2BD with hot water before food, diet and exercises for 1 month and asked to visit for follow up.

TABLE 1: DIET CHART

Time	Food item	Quantity
6:30AM	Amla juice	20 ml +100ml water
9:00AM	Mudga yusha	200 ml
1 PM	Yava rotika + palya	2 rotika(60gms) + 250 grams palya
5:00 PM	Papaya juice	200ml
6:30PM	Amla juice	20 ml + 100 ml water
8:30 PM	Yava rotika + palya	2 rotika(60gms) + 250 grams palya

TABLE 2: VYAYAMA SCHEDULE

Body parts	Type of Vyayama	Duration
Head & Neck rotation	Clock wish & anti clock wise rotation	10 counts, daily 2 times
Elbow	Flexion & extension	10 counts ,daily 2 times
Wrist	Clock wise & anti clock wise rotation	10 counts ,daily 2 times
Fingers	Flexion & extension	10 counts , daily 2 times
Hip joint / abdomen	Clock wise & anti clock wise rotation	10 counts ,daily 2 times
Knee	Clock wise & anti clock wise rotation	10 counts ,daily 2 times
Ankle	Clock wise & anti clock wise rotation	10 counts ,daily 2 times
Leg	Flexion & extension	10 counts ,daily 2 times
Whole body	Walking	1 hour, morning & evening
Whole body	Cycling	1 hour, morning & evening

TABLE 3: ANTHROPOMETRY CHANGES BEFORE TREATMENT AND AFTER TREATMENT

Anthropometry	Before treatment	After treatment
Weight	101kg	98kg
Height	169cm	169 cm
BMI	35.43 kg/m <sup>2</sup>	34.38kg/m <sup>2</sup>
Chest circumference	108cm	100 cm
Abdomen circumference	117cm	110cm
Waist circumference	109cm	104cm
Hip circumference	118cm	114cm
Mid thigh circumference	Right -54cm Left-54cm	Right -54cm Left -54cm
Mid arm circumference	Right- 33cm Left-33 cm	Right -33cm Left -33cm
Waist hip ratio	0.92	0.91

TABLE 4: LIPID PROFILE CHANGES : BEFORE TREATMENT AND AFTER TREATMENT

Lipid profiles with normal values	Before treatment	After treatment
Total Cholesterol (150-200mg/dl)	210 mg/dl	186 mg/dl
Triglycerides (40-140mg/dl)	162 mg/dl	156 mg/dl
HDL(35-170mg/dl)	48 mg/dl	56 mg/dl
LDL(65-170mg/dl)	129 mg/dl	99 mg/dl
VLDL(5-35mg/dl)	32 mg/dl	31.5 mg/dl

## DISCUSSION

Based on the presenting complaints and clinical observation, it was observed that the involvement of kapha and vata dosha along with meda dhatu. Udvartana and sarvanga pariseka was planned along with the diet and exercise for this patient.

**Udvartana:** Udvartana (powder massage) is a procedure of rubbing dry drugs in form of choorna all over the body with friction in anuloma gati(direction opposite to the hair growth). In this therapy, due to increased friction to the whole body parts, the increased medadhatu is depleted. The ama (undigested food residue) gets digested by the increase heat which is generated during udvartana. Due to friction, the beta -3 receptor which is present in the adipose tissue of the subcutaneous fat are motivated, so the triglyceride will break down into fatty acids. These fatty acids are carried to the liver due to effect of massage, which increases the circulation of the internal organ for the conversion of fatty acid into bile. With the addition of low carbohydrate diet and exercise, fats are utilized for energy production. The re-absorption of bile will be decreased in turn utilizing the lipid, which is circulated through the blood.<sup>7</sup>

**Pariseka:** Pariseka is a one of the swedana karma (fomentation) so it reduces the guruta of sarira(heaviness of the body). Dashamoola kwatha choorna having Kashaya (astringent), tikta(bitter) rasa, laghu(light) and ruksha(dryness) guna, so it acts as ama pachana and tridosahara.<sup>8</sup>

**Vyayama:** Exercise will help to reduce the serum total cholesterol, triglyceride level, increases the HDL level diminish the fat of the body and improve the physical activity level.<sup>9</sup>

**Ahara:** As per the management of obesity, the prescribed food should be guru (heavy to digest) and apatarpana (non-nourishing) in nature. Due to guru guna(heavy quality) of food, digestion time is prolonged and normalise the vitiated vata dosha. Apatarpana quality will help in reduction of medadhatu in the body. Food should be katu(pungent), tikta(bitter), kashaya (astringent) rasa pradhana in nature which reduces the kapha. Ruksha guna reduces the fat. Low calorie diet mostly enhanced the anthropometric measurements. Due to presence of antioxidant properties of the food there was significant decrease in LDL in blood. Prescribe diet contain less fat which effects on triglyceride and VLDL level also.<sup>10</sup> Low carbohydrate diet helps to regulate insulin production and decrease circulating insulin. Less insulin may result in less fat storage and fewer food cravings. Dietary fiber prevents absorption of glucose from intestine and helps increase peristalsis movement and reduced blood cholesterol.<sup>11</sup>

**Decrin plus:** It contains Amritadi guggulu, Navaka guggulu and Suddha shilajitu. Amritadi guggulu which reduces serum lipids and it is useful in obesity management. Navaka guggulu and Suddha silajatu are reduces adiposity with in body.

Sthoulya is considered as a Santarpanjanya vyadhi. The line of management mainly includes Lekhana karma (udvartana), swedana (parisheka), vyayama, samana ausadhis. Significant changes were observed, patient was advised to continue the diet and exercise.

The study included patient counselling, dietary management, lifestyle modification and exercise. The lifestyle modification was adopted in ahara, vihara, achara, vichara etc.

## CONCLUSION

On the basis of our clinical observation, it is concluded that a combined effect of diet and lifestyle was found to be effective in managing obesity. There was a significant improvement in anthropometry and lipid profile.

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