



## AYURVEDIC UNDERSTANDING OF STHOULYA (OVERWEIGHT/ OBESITY)

**\*Dr. Saniya C. K. and Dr. Subhrajyoti Chakraborty**

PhD Scholar, Dept. of Kayachikitsa, IMS, BHU, Varanasi.

**\*Corresponding Author: Dr. Saniya C. K.**

PhD Scholar, Dept. of Kayachikitsa, IMS, BHU, Varanasi.

Article Received on 03/11/2020

Article Revised on 23/11/2020

Article Accepted on 13/12/2020

### ABSTRACT

Overweight or sthoulya is being evolved as a major health hazard in urbanized societies and the overweight population has more than doubled in a few decades as a result of changes occurring in food habits and occupational patterns. It has significant health implications in the form of hypertension, diabetes mellitus, coronary heart diseases etc. People are wary of adopting methods which prompts them to undergo surgical procedures and take modern chemical formulation, fearing both grim side effects and the huge cost involved in even for a short-term treatment. Therefore, traditional Ayurvedic methods assume a greater significance. For this, understanding of the concept of sthoulya based on Ayurvedic principles is very essential. This review article is an attempt to describe the Ayurvedic concept of sthoulya by incorporating the nidana (disease causation), samprapthi (etiopathogenesis), laskshana (signs and symptoms), upadrava (complication) and chikitsa (management strategies).

**KEYWORDS:** Sthoulya, obesity, overweight, nidana, samprapthi, chikitsa.

### INTRODUCTION

Obesity or overweight is regarded as pandemic, with potentially disastrous consequences for human health. In a world where food supplies are intermittent, the ability to store energy more than what is required for immediate use is essential for survival. Fat cells within adipose tissue depots are adapted to store excess energy efficiently as free fatty acids for further use. This physiologic system, orchestrated through endocrine and neural pathways, permits human to survive starvation. Along with numerous sweeping socio-economic changes, food habits and occupational patterns have undergone major transformation in the post globalized era. This contributed to the tremendous increase in number of overweight people. The rates of overweight population have doubled or even tripled within a short span of time and is still growing.<sup>[1]</sup> At present overweight and obesity are the fifth leading risks of global deaths.<sup>[2]</sup>

### Prevalence

As per WHO figures, in 2014, more than 1.9 billion adults, 18 years and older were overweight, of these 600 million were obese. Overall, more than 13% of world's adult population (11% men and 15% women) were obese in 2014. Worldwide prevalence of obesity has doubled between 1980 and 2014.<sup>[3]</sup> India is the third most obese country, just behind USA and China, according to a study conducted by the Journal Lancet.<sup>[4]</sup> As per the latest 2015-2016 National Family Health Survey, 20.7% of women and 18.6% of men in India are overweight.<sup>[5]</sup> As per 2007 National Family Health Survey data, Kerala is the second most overweight or obese State in India.

Kerala is behind Punjab with 24% male and 34% female overweight or obese.<sup>[6]</sup>

### Ayurvedic understanding of sthoulya (Obesity / Overweight)

The conceptual and operational framework of Ayurveda is wide enough to include all that is essential to make a man healthy and happy. Maintenance of positive health and treatment of diseases are the two main objectives of Ayurveda. A recent study reports that obesity or sthoulya is included among the top ten selected risks of health. Athisthoulya is mentioned as medoroga in Madavanidana.<sup>[7]</sup> and Baishajyaratnavali.<sup>[8]</sup> But in Charaka samhitha, Susrutha samhitha and Ashtanga Hridaya, it is not mentioned as a specific disease. It is included as one among the complications met by the vitiation of kapha dosha. Sthoulya is one among kapha predominant diseases involving kapha and medas as the main dosha and dushya in the pathogenesis. Acharyas prescribed that sthoulya is a bahudoshaja vyadhi, which further proves that it is the root cause or nidanardhakara vyadhies of many killer diseases. It is one of the yapyya types of diseases. Charaka described athisthoulya in nanatmaja vikaras of kapha dosha.<sup>[9]</sup> He also mentioned athisthoulya as one among the santharpanajanya vyadhies and ashtaninditha purushas.

For better understanding of abnormal state of body, balanced state of body should be known first. Acharya Charaka had mentioned criteria for a healthy person under the umbrella term of Prasastha purusha lakshana in Sutrasthana, Ashtanindithiya chapter. The sama mamsa

chaya (proper nourishment of mamsa) and sama maamsa pramana (proportionate musculature) possess two angles, which excludes the sthula, krisa, atidirgha and athihraswa types because chaya induces deposition and pramana means height or growth rate.<sup>[10]</sup> Samapaktha and samajara indicate proper status of agni in terms of abhyavaharanasakthi (power of food intake) and proper jaranasakthi (power of digestion). If agni is good the digestion will also be good and distribute equal nourishment to all dhatus, so the dhatus will be in samapramana (proportionate distribution) and samaupachaya (proportionate nourishment). This state prevents the disease, indicating vyadhikshamatwam (immunity) in a healthy person. A person in this condition can tolerate kshudha (hunger), pipasa (thirst), atapa (sun light), saitya (cold), vyayama (exercise) and vikara (disease). This will be impaired in case of obesity and emaciation. A person with madyama shareera has all dhatus in equal proportion and they can withstand any extreme situations. Charaka enlisted eight people as of undesirable constitution based on the somatic appearance. They are Athidirga (gigantism), Athihraswa (dwarfism), Athigaura (whitish), Athikrishna (blackish), Athiloma (excessive hair), Aloma (without hair), Athisthula (obese) and Athikrishna (too emaciated). Special emphasis has been given on treatments relating to sthoulya and krisa because these problems are found in abundance and it has distinct pathogenesis.

#### **Sthoulya nidana**

Accumulation of fat result from a discrepancy between energy consumption and energy expenditure which is too large to be defended by the hypothalamic regulation of Basal Metabolic Rate. A continuous small daily positive energy balance of only 50-200 kcal would lead to weight gain of 2-20 kg over a period of 4-10 years. Weight tends to increase throughout adult life, as BMR and physical activity decreases.<sup>[11]</sup>

The aetiology of obesity is complex and those factors contributing or influencing obesity are given below.

**Age:** Obesity can occur at any age, and generally increases with age. Infants with excessive weight gain have an increased incidence of obesity in later life. Most adipose cells are formed early in life and the obese infants lays down more of these cells (hyperplastic obesity) than normal infant.

**Sex:** Men generally have high rates of overweight than woman, although women may have high rates of obesity. Men were found to gain more weight between 29-35 years, while women gain most between 45-49 years of age, i.e. at menopausal age. It has been claimed that women's weight increases with successive pregnancies, about 1 kg per pregnancy.

**Genetic factors:** There is a genetic component in the aetiology of obesity. Twin studies have shown a close

relation between the weights of identical twins even when they are reared in dissimilar environments.

**Physical inactivity:** There is convincing evidence that regular physical activity is protective against unhealthy weight gain. Sedentary lifestyle particularly sedentary occupation and inactive recreation such as watching television promote it, while physical activity and physical fitness are important modifiers of mortality and morbidity related to overweight and obesity.

**Socio-economic status:** As a chronic disease, overweight and obesity are prevalent in both developed and developing countries. For industrialized countries, it has been suggested that such increase in bodyweight have been caused by reduced levels of physical activity. Obesity in the developing world can no longer be considered as a disease of the people with high economic status.

**Eating habits:** Eating habits like eating between meals, preference to sweets, refined food and fats are established very early in life. The composition of diet, the periodicity with which it is eaten, and amount of energy derived from it are all relevant to the aetiology of obesity. A diet containing more energy than needed may lead to prolonged post-prandial hyperlipidaemia and deposition of triglycerides in the adipose tissue resulting in obesity.

**Psychosocial factors:** These are deeply involved in the aetiology of obesity. Overeating may be a symptom of depression, anxiety, frustration, and loneliness in childhood as it is in adult life.

**Familial tendency:** Obesity frequently runs in families of obese parents having obese children, but this is not necessarily explained solely by the influence of genes.

**Endocrine factors:** Obesity may be a part of the clinical picture of well-known endocrine disorders such as Type 2 diabetes, hypothyroidism, cushing's syndrome, gigantism, acromegaly, insulinomas and others. In addition, several hormones regulate appetite and modulate intake of food and fat accumulation.

**Alcohol:** The relation between alcohol consumption and adiposity was generally positive for men and negative for women.

**Education:** In most affluent societies, there is an inverse relation between education level and prevalence of obesity.

**Ethnicity:** Ethnic groups in many industrialized countries appear to be especially susceptible to the development of obesity and its complications. This may be due to a genetic predisposition to obesity.

**Drugs:** Use of certain drugs like corticosteroids, contraceptives, insulin, psychotropic agents etc. can promote weight gain.<sup>[12]</sup>

Acharya Charaka has mentioned the nidana of sthoulya analytically in Charakasamhitha, soothrasthana 21<sup>st</sup> chapter-Ashtaou nindhitho adyaya.<sup>[13]</sup> Most of them are of the exogenous types. All causative factors in the Ayurvedic classics can be classified into four groups.

### 1. Aharatmaka nidana (dietary factors)

Following pattern of consumption of ahara leads to sthoulya

- Athisampoorana (overeating)
- Santarpana (over nourishment)
- Adyasana (consumption of food before complete digestion)
- Excessive consumption of the following
  - Guru ahara (heavy food)
  - Madhura ahara (sweet food)
  - Sheetha ahara (cold diet)
  - Snigdha ahara (unctuous diet)
  - Sleshmalahara (kapha increasing food)
  - Mamsa sevana (meat consumption)
  - Payasa vikarasevana (milk and its preparations)
  - Dadhi sevana (curd consumption)
- Navannasevana (usage of fresh grains)
- Navamadyasevana (usage of fresh alcoholic preparations)
- Gramya mamsa rasasevana (usage of domestic animal's meat soups)
- Sarpisevana (usage of ghee)
- Ikshuvikara sevana (usage of sugarcane preparations)
- Gudavikara sevana (usage of jaggery preparations)
- Salisevana (excessive use of rice)
- Godhumasevana (excessive use of wheat)
- Mashasevana (use of black gram)
- Bhojanantara jalapana (intake of water after meal)

### 1. Viharatmaka nidana (lifestyle factors)

Following lifestyle factors play an important role in sthoulya:

- Avyayama (lack of physical exercise)
- Avyavaya (lack of sexual life)
- Divaswapna (day sleep)
- Asanasukha (luxurious sitting)
- Svapnaprasanga (excessive sleep)
- Gandhamalanusevanam (using of perfumes/garlands)
- Bhojanantara snanam (bathing after taking the meals)
- Bhojananantara nidra (sleeping after meals)

### 2. Manasika nidana (psychological factors)

- Harshanityatvam (uninterrupted cheerfulness)
- Achinthanam (lack of anxiety)
- Manasonivrtti (relaxation from tension)
- Priyadarshanam (observation of beloved things)

- Saukhyam (completely happy)

### 3. Other factors

- Bijasvabhava (genetic factor)- According to Charaka, defect in bijasvabhava i.e, part of bija, which resembles chromosomes and genes may lead to defective development of that organ.<sup>[14]</sup> In Bhavaprakasha, it is mentioned that decreased proportion of sonitha and increased proportion of sukra in bija at the time of conception, results in development of potent but lean body, while increased proportion of sonitha and decreased proportion of sukra predisposes towards development of stout but weak body.<sup>[15]</sup> These genetic manifestations are unchangeable. As per Charaka Samhitha sareerasthana, over nutrition during pregnancy especially with madhura rasa is mentioned as a predisposing factor for the birth of an obese child leading to childhood obesity, which indicates role of environmental and hereditary cultural factors in the genesis of sthoulya.<sup>[16]</sup>
- Athirasayana and vrishyathisevana- Rasayanas are mentioned as a line of treatment for karsya.<sup>[17]</sup> Hence excessive indulgence of rasayana and vrsya drugs may cause sthoulya.
- Brimhana therapy-Brimhana therapies like snigdha brimhana vasthi, taila abhyanga, snigdha udwarthana, excessive intake of brimhana drugs etc may cause sthoulya.

### Samprapthi of sthoulya

Obesity can result from increased energy intake, decreased energy expenditure or a combination of these two. The concept of body weight set point is supported by physiologic mechanisms centered around a sensing system in adipose tissue that reflects fat stores and a receptor or 'adipostat' that is in hypothalamic centers. When fat stores are depleted, the adipostat signal is low and the hypothalamus responds by stimulating hunger and decreasing energy expenditure to conserve energy and vice versa. The recent discovery of ob gene, and its product leptin, and the db gene, whose product is the leptin receptor, provides important elements of a molecular basis for this physiologic concept.<sup>[18]</sup>

Sthoulya is a dushya dominant disorder and medas plays a major role in the pathogenesis. Along with this, tridoshas are vitiated, especially kledaka kapha, pachaka pitha, samana and vyana vayu.

Medodhatwagni (factor responsible for nourishment of medo dhathu) vaishamyia is the main reason for sthoulya, which results into the accumulation of huge amount of undigested medas in the body. This will obstruct channels or passages and further results in creating obstacles in nourishment process of other dhathus. The medas further continues to deposit in excess which make person quite unable in all the physical activities or body

movements in general.<sup>[19]</sup> Kapha is seated in medodhathu along with other dhathus. So on the basis of asryaasrayi bhava, vitiation of kapha also leads to vitiation of that dhathu in which kapha is seated, along with excessive consumption of such guna dominant diet and specific guna dominant poshak annarasa. In sthoulya, pitha specially pachaka pitta remains in a higher state and exhibit symptoms like athikshudha (excessive hunger), atipipasa (excessive thirst), swedhadhikya (excessive sweat) and daurgandhya (bad body odour). Involvement of vayu can be clearly understood by lakshanas like agnisandhukshana (increased digestive fire) and improper fat distribution in the body. These types of symptoms exhibit the involvement of vitiated samana and vyana vayu respectively. Vata is in the state of avrtha in koshta, which makes agnivaishmya which ultimately increases the abhyavaharana sakthi or demand of food. In sthoulya, tikshnagni is a prominent feature which is caused by the vitiation of vata due to the obstruction of meda. Along with this ama formation also occurs.

#### Poorvaroopa (Premonitory Symptoms)

Poorvaroopa of sthoulya has not been described by any Ayurvedic literature. According to Charaka, whenever poorvaroopa of disease is not mentioned, the weak manifestation of roopa should be considered as poorvaroopa. Keeping this view in mind, lakshanas of kaphavidhi like alasya (laziness), angasathilya (looseness of body parts), madhurasayatha (sweetness of mouth), atipipasa (excessive thirst) etc may be considered as poorvaroopa. Apart from that, symptoms of medovahasrotodushti described as poorvaroopa of prameha, can be considered as poorvaroopa of sthoulya also.<sup>[20]</sup> The symptoms of medovahasrotodushti like athinidra, tantra, alasya etc are signs of sthoulya. Hence the initial stages of these signs and symptoms can be considered as a poorvaroopa of sthoulya.

#### Roopa (Signs and Symptoms)

Based on the distribution of fat, obesity may be of two types: Android obesity and Gynoid obesity. Android obesity is a type of obesity which is characterized by the storage of fat at abdominal region. Apple like body shape is seen in this type of obesity. These people are more prone for obesity related diseases such as heart diseases, metabolic syndrome, gout, arterial related disorders, cancers, and others. Gynoid obesity is characterized by presence of fat at hip and thigh regions. Body shape of these people would be pear shaped and hence they are called pear obese or gynoid obese.<sup>[21]</sup> Since it is a gradual development, the patient may not complain of her overweight or obesity, therefore it has to be identified during general examination. Common symptoms include exertional dyspnea, sluggishness, angina, arthralgias of knees and hip etc.<sup>[22]</sup> Protuberant abdomen, development of skin fold around the axilla, below breast, peritoneal region, varicose veins and oedema of ankles, difficulty in sitting in squatting position, getting up or sitting in a

chair are most troublesome features of overweight person.

Ayurvedic description of sthoulya is somewhat similar and more descriptive in nature. Charaka has given description about cardinal symptoms of obesity as medomamsathivridhi (excessive formation of medas and mamsadhathu), chala sphik (pendulous movement of buttock), chala udara (pendulous movement of abdomen), chala sthana (pendulous movement of breast), ayadhopachaya (improper body structure) and anutsaha (lack of enthusiasm).<sup>[23]</sup>

#### Ashtadosha of sthoulya (eight disabilities)<sup>[13]</sup>

**Ayushohrasa (shortening of life span):** Due to medodhatvagni mandyata, decreased formation of uttara dhathu leads to ayushohrasa. The life span of an obese person decreases proportionally with increase of BMI.

**Javoparodha (lack of longevity):** When medo dhathu is increased in the body the person becomes laxer and more sensitive. He becomes unable to withstand any physical trauma or exertion. He is always lazy and is reluctant to do any activity.

#### Krichravayava (difficulty in sexual intercourse):

Excessive medodhathu causes depletion of all the other dhathus. So sukra is also depleted. Person with kshina sukla is unable to enjoy sex and cannot create any new progeny.

**Daurbalya (general weakness):** Due to imbalance of saphadhathus an obese person feels tired.

**Swedhabadha (excessive sweating):** Due to excessive deposition of medas, increase in swedha causes liability to bear the strain of any activity.

**Daugandha (bad odour of body):** Excessive swedha results in bad odour from the body.

**Kshudhathimatra (excessive hunger):** Due to medavrittha vata, tikshnagni occurs which results in athikshudha and pipasa.

**Athipipasa (excessive thirst):** The obese person feels excessive thirst.

#### Assessment of Sthoulya

Ayurveda confirms the diagnosis based on the lakshanas exhibited by the patient. Some recent methods are used for assessing and classifying the sthoulya or overweight in the beginning itself. They are given below.

##### • Body weight

Body weight, though not an accurate measure of excess fat, is a widely used index. In epidemiological studies it is conventional to accept  $\pm 2$  SD (standard deviation) from the median weight for height as a cut-off point for obesity.

Various other indicators such as

(A) Body mass index (Quetelet's index =  $\frac{\text{Weight}}{(\text{Height in meter})^2}$ )

This is a simple index of weight for height that is commonly used to classify underweight, overweight, and obesity in adults. It is defined as the weight in kilograms divided by the height in metres (Kg/m<sup>2</sup>). Obesity is classified as a BMI > 30.

**Table 1-Classification of BMI.**

Classification	BMI	Risk of co-morbidities
Underweight	<18.50	Low (but risk of other clinical problems increased)
Normal range	18.50-24.99	Average
Overweight	≥25.00	
Preobese	25.00- 29.99	Increased
Obese class I	30.00-34.99	Moderate
Obese class II	35.00-39.99	Severe
Obese class III	≥40.00	Very severe

(B) Ponderal index =  $\frac{\text{Height(cm)}}{\text{Cube root of body weight(kg)}}$

(C) Brocca index = Height(cm) - 100

(D) Lorentz's formula =  $\frac{\text{Ht(cm)} - 100 - \frac{\text{Ht(cm)} - 150}{2(\text{women}) \text{ or } 4(\text{men})}}$

(E) Corpulence index =  $\frac{\text{Actual weight}}{\text{Desirable weight}}$

This should not exceed 1.2

BMI and Brocca index are used widely.<sup>[12]</sup>

#### • Skin fold thickness

A large proportion of total body fat is located just under the skin. Since it is most accessible, the method commonly used is the measurement of skin fold thickness. Several varieties of capillaries (e.g. Harpenden skin calipers) are available for the purpose. The measurement may be taken at all the four sites-mid-triceps, biceps, sub scapular and supriliac regions. The sum of the measurements will be less than 40mm in boys and 50 mm in girls. Unfortunately, standards for subcutaneous fat do not exist for comparison and in extreme obesity measurements may be impossible.<sup>[24]</sup>

#### Waist circumference and waist hip ratio (WHR)

Waist circumference is measured at the midpoint between the lower border of the rib cage and the iliac crest. It is a convenient and easy measurement that is unrelated to height, correlates closely with BMI and WHR and is an approximate index of intra-abdominal fat mass and total body fat. There is an increased risk of metabolic complications for men with a waist circumference ≥102 cm, and women with a waist circumference ≥88 cm. High WHR (>1 in men and 0.85 in women) indicates abdominal fat accumulation.<sup>[24]</sup>

#### Dual energy x-ray absorptiometry (DXA)

DXA, more commonly used to determine bone mineral density for diagnosis of osteoporosis, can also be used to determine fat content of the body and provides one of the most accurate measurements. Two different types of

beams scan the body. One is absorbed more readily by fat than the other, so the computer can differentiate the fat from other tissues and provide the percentage of body fat.<sup>[25]</sup>

#### Near-infrared interactance

Near-infrared interactance (NIR) uses a fiberoptic probe and a digital analyzer to determine the body's fat composition. The probe is placed against body sites, most often the biceps. The person's height, weight, size of frame and level of activity are entered into the analyzer. Light penetrates the tissue and reflects off the bone back to the equipment, which records optical densities. Based on the information received from the probe and the information entered, the machine calculates the percentage of body fat.<sup>[25]</sup>

#### Hydrostatic (underwater) weighing

Hydrostatic (underwater) weighing is based on the fact that lean body tissue is more dense than fat. While underwater weighing has been used to establish references for percentage of body fat and is generally considered the most accurate measure of body fat, the equipment is usually available in research facilities. Testing requires a large tank of water (about 1000 gallons) with the water maintained at a constant temperature. The person is submerged repeatedly (8 to 10 times) in a large tub of water. After submersion, the person holds breath for about 10 to 15 seconds while the technician records the weight. Calculations are based on the difference between weight in the air and weight under water. The body's density is calculated by dividing the body mass by the volume of water it displaces (subtracting air left in the lungs). From that result, another calculation determines body fat.<sup>[25]</sup>

#### Upadrava

Overweight is a risk factor in the development of many disorders. Important complications of obesity are given below.

Obesity attributes about<sup>[26]</sup>

- 44% of Diabetes mellitus
- 23% of Ischemic Heart Disease (IHD)
- 7.4 % Cancer

- 26% Hypertension
- 11.5% Hypothyroidism
- 40 – 80 % PCOS

Charaka has explained agni and vayu as upadravakara bhavas. Vayu which has been obstructed by the medas moves abundantly in belly and thus stimulates digestion and absorption of food. Hence the person digests the food quickly and desires excessively for the intake of food. If any delay occurs in the intake, the patient may get afflicted with some severe disorders. The vitiated agni and vayu burns the sthoulya rogi like the forest fire burning the forest.<sup>[23]</sup>

### Sadya asadyatha

Sthoulya is krichrasadya in nature. Charaka has mentioned bad prognosis for hereditary diseases. Hence sahaja sthoulya can be considered as asadya. Acharya Vagbhata also has the similar opinion.<sup>[27]</sup> The drug of choice of the sthoula rogi must have definite properties like medohara, kaphahara, vatahara and agnisamana. But the drug with vatasamana property will contribute to kaphavidhi and medovidhi and vice versa. Because of this basic principle of drug action, the selection of a specific drug for the effective treatment of sthoulya is difficult. According to Charaka, athisthoulya is more critical (athisthoulaameva athipeedayathi). If upadravas are developed in sthoulya, it is difficult to treat and may be life threatening. So it is necessary to treat sthoulya in early stage itself.

### Sthoulya chikitsa

The aim of the treatment is to decrease calorie intake and increase the expenditure. Here comes the multidisciplinary approach to weight loss. It includes the following phases.

1. Non-pharmacological measures
  - A-Patient counseling
  - B-Social support
  - C-Behavioral modification
  - D-Dietary management
  - E-Exercise therapy
2. Pharmacological measure
3. Surgical measures
4. Prevention of obesity

In pharmacological measures, techniques like suppression of appetite via centrally active medications like sibutramine that alter monoamine neurotransmitters and peripherally acting medications like orlistat in reduction of absorption of selective macronutrients from the gastrointestinal (GI) tract, such as fat<sup>[28]</sup> are utilized.

Bariatric surgery can be considered for patient with severe obesity (BMI  $\geq 40$  kg/m<sup>2</sup>) or those with moderate obesity (BMI  $\geq 35$  kg/m<sup>2</sup>) associated with a serious medical condition. Weight loss surgeries fall into two categories: restrictive and restrictive-malabsorptive. Restrictive surgeries limit the amount of food the stomach can hold and slow the rate of gastric emptying

whereas the later one produce malabsorption in addition to the above functions.<sup>[29]</sup>

Apart from pharmacological and surgical management of obesity, other methods for management of obesity are similar in both systems and are more powerful in Ayurveda. Ayurvedic treatment aims not only at the radical removal of the causative factors of the diseases, but also at the restoration of the doshik equilibrium. According to Ayurveda, general management of any disorder is divided into three parts.

**1. Nidana parivarjana:** Avoidance of the causative factors is of prime importance in the prevention as well as cure of disease. Prophylactic treatment is mainly based on this point. While treating disease, highest importance should be given to avoidance of causative factors which is responsible for the vitiation of doshas, since it will be helpful in samprapthi vighattana of the disease. Nidana such as kapha vridhikara, medovidhikara and medovaha srotas vitiating aahara viharas should be strictly prohibited.

**2. Samsamana therapy:** Langana and rookshana can be administered for samana purpose in sthoulya. Samana chikitsa can be implemented through seven different ways.<sup>[30]</sup> All the seven ways of langana like Dipana, pachana, vyayama, maruthasevana, atapasevana, kshudhnigraha and trishna nigraha can be applied to the patient of sthoulya according to the roga and rogi bala. Samana chikitsa also include management of an ailment using suitable medicaments, which incorporates into the dipana and pachana types. Alleviation of vata, pitha and kapha along with depletion of medodhatu by increasing medodhatvagni is the main aim of treatment. Administration of drugs which are heavy and non nourishing and that result in the alleviation of medas, sleshma and vata is ideal for sthoulya chikitsa.<sup>[31]</sup> Sootra of sthoulya is guru (heavy), atarpana chikitsa (non nourishing) vatagnaannapana, sleshma medohara annapana, vasthi karma with rooksha ushna dravyas and udwarthana with teekshna rooksha dravyas. Acharya Susruta advises administration of virukshana and chedaniya dravyas like silajathu, guggulu, gomutra, thriphala, loharaja, rasanjana and madhu in sthoulya.<sup>[31]</sup> Bhavamishra recommends dhoomapana, lekhanavasthi and pathyaapathyas in medovidhi chikitsa.<sup>[32]</sup>

An ideal sthoulyagna drug helps in samprapthi vighattana of sthoulya. It should have the following properties.

- Rasa :Katu, tikta
- Guna :Ruksha, tikshna
- Virya :Ushna
- Karma :Lekhaneeya, medohara, aamapachana, dhathusoshana

**3. Samsodhana therapy:** Therapies in which the aggravated doshas are eliminated after mobilizing them from their respective sites through urdwa or adhomarga from the body is known as sodhana therapy. It is also

known by the term apakarshana by Charaka. Sodhana is of two main types.

- Bahya sodhana (External purification)
- Abhyanthara sodhana (Internal purification)

**Bahya sodhana:** Many Acharyas mentioned bahya sodhana for sthoulya chikitsa like rookshaudwarthana, due to its properties like kaphahara, medoharatwa, sthirikaranangatha etc...In sthoulya, udwarthana removes the foetid odour, restricts the process of excessive sweating and alleviates the aggravated doshas by function. Usually kolakulathadi choorna, triphala choorna etc are used for this. Due to increased friction all over the body, the excess medas get depleted. The heat generated during udwarthana helps to digest aama and there by corrects the metabolism in obese individuals.

**Abyanthara sodhanana:** Charaka has mentioned sthoulya under the caption of santharpana janya vyadhi and for its management vamaana, rakthamoksha and virechana are recommended. He also suggests ruksha, tikshna and ushnavasthi for the management of sthoulya. According to Vagbhata, athisthoulya patient with adhika dosha and adhika bala should be treated by samsodhana therapy including vamaana, virechana, rukshaniruha, rakthamokshana and sirovirechana.

## CONCLUSION

Multiple causative factors are responsible for the development of sthoulya. The various nidanas, causes the imbalance of tridoshas, which further progress to dhatwagni mandya and improper mala-dhathu parinama. The Ayurvedic management is determined by the nidanas and samprapthi. Hence a through understanding of the concept of sthoulya is essential for a proper management.

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