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Review Article

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STHAULYA (OBESITY) IN AYURVEDA AND ITS MANAGEMENT WITH GUGGULU: A REVIEW

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ABSTRACT

Obesity is not because it runs in the family; it is because the lifestyle and concept responsible for the people turn obese. Sthaulya has been included by Acharya Charak among ashtauninditiya pursha. Obesity has become epidemic today and it is essential to understand the consequences of obesity. In a world where food supplies are intermittent, fat cells, residing within widely distributed adipose tissue depots, are adapted to store excess energy efficiently as triglyceride and, when needed, release stored energy as free fatty acids for use at other sites.[1] This physiologic system, orchestrated through endocrine and neural pathways, permits humans to survive starvation for as long as several months. Recent study reveals that obesity and its related disorders occupying major share in the spectrum of health, disease and management.[2] Fraction A in hypercholesterolemia. It is one of the disorders of non-communicable disease, which has laid down foundation stone of diabetes mellitus, metabolic syndrome, hypertension and others.[3] The etio-pathogenesis, management and consequences of obesity are not very clear and it is still evolving in biomedical sciences. As a disease entity it is a multi-factorial metabolic disorders, very near to Medoroga/Sthaulya of Ayurveda.[4] The prevalence of obesity is higher in urban areas than in rural populations of India, due to a steady erosion of the holistic way of life in the cities as well as the sedentary and overeating habit. The spiritual, psychological, and physical levels of human health and disease is given due importance in Ayurveda. The current understanding of adipose tissue as an endocrine organ coupled with the core principles drawn from Ayurveda may form a scientific basis for the management of obesity. Guggul is one of the oldest Ayurvedic herbs taken orally for a variety of diseases. The term "guggul" in Sanskrit means "protects against diseases. In course of the management of obesity Guggulu is a popular herbal drug which has been used as single form or compound form to treat several ailments since a long time in India.[5] The oleo-gum or the resin of *guggulu* obtained from stem is the main part, which has been used for therapeutic uses.

KEYWORDS: Sthaulya (Obesity), Guggulu, Ashtanindita purusha, Non communicable disease.

INTRODUCTION

Growing prevalence of obesity worldwide is an increasing concern surrounding the rising rates of Diabetes, Coronary and Cerebrovascular disease that pose a big threat in terms of health and financial hazards for the entire population of the world.

AIMS AND OBJECTIVES

To see the effectiveness of guggulu in the treatment of obesity according to various contemporary research and classical texts of Ayurveda.

MATERIALS AND METHODS

In this review article we searched several research database as well as Ayurveda classical texts like Brihattrayi, Nighantu, Sharangdhar Samhita, Bhaisajya Ratnavali etc. to see the most talked drug guggulu and its role in the management of this disorder. Besides, we checked the modern mode of action of guggulu in terms of dissolution of the fat tissue that might be the mainstay of the treatment of obesity.

Obesity in Ayurveda

Charaka has described obesity as a disease of the fat tissue (Medoroga) leading to hugeness (sthoulyam). The prevalence of obesity is higher in urban areas than in rural populations of India, due to a steady erosion of the holistic way of life in the cities as well as the sedentary and overeating habit. The spiritual, psychological, and physical levels of human health and disease is given due importance in Ayurveda. The current understanding of adipose tissue as an endocrine organ and the concept derived from Ayurveda to get rid of it may form a scientific basis for the management of obesity.

Symptoms

1. *AtiShevida* [Excessive Sweating]
2. *SharamjanyaSwasa*[Breathlessness on mild exertion]
3. *AatiNindra*[Excessive sleep]
4. *KaryaDorblyta* [Difficulty to perform heavy work]
5. *Jadyatha*[Stuggishness]
6. *Alpaayu*[Short life span]
7. *Alpabala*[Decreased bony strength]
8. *Uathashahani*[Inertness]
9. *SharirDurgandhta*[Foul odour of the body]
10. *Gadgadtava*[Unclear voice]
11. *Kshudhavridhi*[Excessive hunger]
12. *AtiTrishna*[Excessive thirst].

Table 1: Complications of Obesity(Sthaulya) described in the texts of Ayurveda.

No.	Updrava	Sushruta Samhita	Asthang Sangraha	Asthang Hriday	Yog Ratnakar	Bhav Prakash	Madanpal Nighantu
1	Prameha	-	+	+	+	+	-
2.	Pramehapidika						
3.	Jvara	+	+	+	+	+	+
4.	Bhagandara	+	+	+	+	+	+
5.	Vidradhi	+	-	-	-	-	+
6.	Vatavikara	+	-	-	-	-	+
7.	Udar Roga	-	+	+	-	-	-
8.	Urustambha -	-	+	-	-	-	-
9.	Svasa	-	+	-	-	-	-
10.	Apachi	-	-	+	+	+	-
11.	Kasa	-	-	+	+	+	-
12.	Sanyasa	-	-	+	-	-	-
13.	Kushtha	-	-	+	+	+	-
14.	Visarpa	-	-	-	+	+	-
15.	Atisara	-	-	-	+	+	-
16.	Arsha	-	-	-	+	+	-
17.	Shlipada	-	-	-	+	+	-
18.	Kamala	-	-	-	+	+	-
19.	Mutrakricchra	-	-	+	-	-	-
20.	Ajirna	-	-	+	-	-	-

Epidemiology

In the era of urbanization, obesity has emerged as a serious health issue of both developed and developing nations and recognized as serious public health problems of the 21st century. It is recognized as one of the important lifestyle and metabolic disorders. It is a leading preventable cause of death world over. The incidence of obesity has been felt most dramatically in urban areas and gradually acquires its place in semi-urban and rural areas. WHO has predicted in1997 that overweight and obesity may soon replace undernutrition and infectious diseases as the most significant cause of poor health. In 2005, WHO estimates that, at least 400 million adults (9.8%) are obese at world map, with higher rates among women than men. Obesity is the main reason for about 80% of type 2 diabetes, about 70% of cardiovascular diseases, and 42% of breast and colon cancers. At present, childhood-obesity is also running out of control. In the past two decades, the number of overweight children and adolescents has doubled.

Aetiology(Hetu)

Exogenous causes are meda (fat) potentiating diet and regimens, whereas dosha, dhatu, Mala, Srotas etc. come under the endogenous factors.

Pathogensis of Obesity According to *Ayurveda*:- In the pathogenesis of sthaulya, all the three doshas are vitiated, especially Kledaka Kapha, Pacaka Pitta, Samana and Vyana Vayu are the Doshika factors responsible for the samprapti of sthaulya. Aama annarasa traveling in the body channels gets obstructed in the Medovaha Srotas owing to the khavaigunya due to bija svabhava or sharir shaithilya and combines with kapha and meda, decreasing the medo dhatvagni which in turn gives rise to augmentation of meda. Vitiated Vyana Vayu propels this augmented meda dhatu to its sites viz. udara (abdomen), sphika (hip region), stana(breast), gala(neck) etc. resulting in sthaulya or ati Sthula. *Atisthaulya* (obesity) is considered as one of the eight despicable conditions as described by *Acharya Charaka*.[6] A person in whom there is excessive accumulation of *Meda* (fat/adipose tissue) and *Mamsa* (flesh/muscle tissue) leading to flabbiness of hips, abdomen, and breast has been categorized as *Atisthula*.[7]*Medas* is body tissue predominant in *Prithvi and Ap Mahabhutas* similar to *Kapha Dosha*.[8] It is characterized by *Snighdha* (unctuous), *Guru* (heavy), *Sthula* (space occupying), *Picchila* (slimy), *Mridu* (tender/soft) and *Sandra* (dense) *Guna* (qualities). *Sneha* (oleation), *Sweda* (production of sweat), *Drudhatva* (compactness), and *Asthipushti* (nourishment of bones) are the main functions of *Medodhatu.* Consumption of *Guru* (heavy to digest),

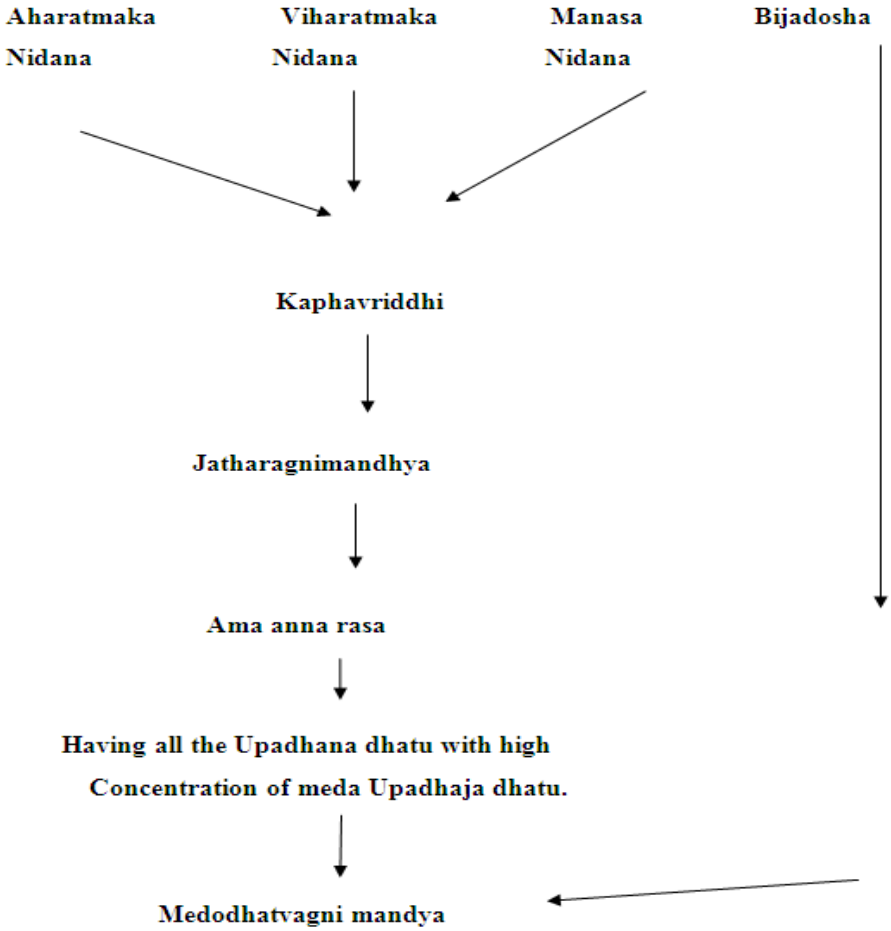
Sheeta (cold), *Snigdha* (unctuous), *Madhuradi Kaphavardhaka* (sweet and *Kapha* increasing) drugs along with lack of exercise and sedentary life style result in excessive nourishment of *Medas* while other bodily elements (*Dhatus*) are deprived of nourishment. Disproportionately increased *Medas* is accountable for several serious consequences reported in *Charaka Samhita* like *Ayuhrasa* (decrease of life span), *Javoparodha* (decrease in enthusiasm and activity), *Krichravyavayata* (difficulty in sexual act), *Dourbalya* (decrease of strength), *Dourgandhya* (bad odor), *Swedabadha* (excess perspiration) and *Kshut Pipasadhikya* (excessive hunger and thirst). *Mandotsaham* (less activity referring to sedentary lifestyle), *Atisnigdham* (excessive intake of fatty substances), *Atisthaulyam* (gross obesity), and *Mahashanam* (excessive eating) constitute for causation of *Prameha* (urinary diseases including Diabetes) and these etiological factors may also initiate Dyslipidemia.

Table 2: Quantifying obesity with body mass index.

BMI (kg/m2)	Classification	Risk of co morbidities
18.5 – 24.9	Normal range	Negligible
25.0-29.9	Overweight	Mildly increased
30.0 30.0 - 39.9	Obese Class 1	Moderate
35.0 - 39.9 > 40.0	Class 2 Class 3	Severe Very severe

In *Ayurveda*, Abnormal composition of *Medodhatu is* considered as *Medodosha* & subsequentlyas *Medoroga*. Derangement of *Agni* ordigestive power leads to production of *Ama*, which disturbs *Dhatvagni* of *Medodhatu* & blocks the proper formation of further *Dhatu*. Improperly formed *Medodhatu* accumulates inthe body causing *Sthaulyaroga*. Accumulated *Medo* cause disturbance to the action of *Vata*, which cause increased appetite, due to *Chala-Guna* of *Vata*, patients therefore eat more &the entire food is abnormally converted into*Medodhatu*.6-

PROCESS OF SAMPRAPTI IN SCHEMETIC PRESENTATION



Pathyapathya
Charaka has mentioned a special type of diet, which is guru and apatarpana. It acts in two ways.

Ahara varga	Pathya	Apathya
Shuka Dhanya	Yava Venuyava, Kodrava, Nivar, Jurna	Godhuma, Navanna Shali
Shami Dhanya	Mudga, Rajmasha, Masur, Adhaki Kulattha, Chanak,	Masha, Tila
Shaka Varga	Vruntak, Patrashaka, Patola	Madhurshaka, Kand
Phala	Kapitha, Jamun, Amalak	Madhuraphala
Dravya	Takra, Madhu, Ushnodaka Til tail, Sarshap tail, Arishtha Asava, Jirnamadya	Dugdha, Ikshu Navnit, Ghrita Dadh

One is the neutralization of Vayu and Agni by heaviness of the food, another is non-nourishing of the Medas rather it prevents the further formation of fat.

Regarding these properties following diet can be used
Guggulu (Commiphora Mukul/Wightii)
Chemical Composition:[9]
Steroids and sterols: Guggulsterone is the steroid which exhibits anti obesity and anti-inflammatory action.

Triterpenoids: Myrrhanone and myrrhanol are the terpenoids that have been reported to trigger anti-inflammatory potential.

Sesquiterpenoids: Cardinene has neuroprotective action.
Volatile oils: Limonine,eugenol,pinene and cineole.
Flavonoids: Quercitin exerts neuroprotective and anti-inflammatory actions.

Therapeutic effects of Guggulu
Antihyperlipidemic action
Guggulsterone, the bioactive constituent of Guggul, has been recognized as an antagonist at the nuclear farnesoid x receptor (FXR),[10,11] is found to be a key transcriptional regulator for the maintenance of cholesterol and bile acid homeostasis,[12,13,14] in the body system. It acts against removing excess cholesterol from the body by transforming it to bile acid through from the body.[15] It is observed that treatment by Guggulu significantly increases (57%) bile acid secretion through fecal route.[16] The cholesterol 7α-hydroxylase (CYP7A1) is other rate limiting enzyme of bile acid synthesis from cholesterol in the liver.[17]

Antioxidant action
The overproduction of nitric oxide is closely linked with oxidative stress, that lowers Glutathione,[18] superoxide dismutase (SOD) and increases xanthine oxidase which are associated with the the pathogenesis of hpercholesterolemia, obesity, atherosclerosis and chronic inflammation.[19] Itwas not until the 1990s when the antioxidant activity of guggulsterone was first reported.[20,21] It showed potent inhibitory activity against the production of nitric oxide[22] and therapeutically beneficial to diseases related to the oxidative stress such as obesity etc.

Anti inflammatory action
The anti inflammatory activity of Guggul was documented in Ayurveda classics in terms of Shothaghna and further reported in 1960,[23] and subsequently in 1977.[24]

Fat lowering action
Due to enzyme breakdown property guggulu exerts, it is capable of reducing fat in mice, a study has been conducted.

Neuroprotective action
Guggulu extract fed to the mice has showed the neuroprptective effect of damaged glia cells.

Cardiotonic
Guggulu reduces drug related heart disease in mice.

Antitumor effect: Guggulu is found to exhibit anti tumor effect in rats.

DISSCUSSION

Obesity has become epidemic today and it is essential to understand the consequences of obesity. It is one of the disorders of non-communicable disease, which laid down foundation stone of diabetes mellitus, metabolic syndrome, hypertension and others. In ayurveda, sthaulya and medoroga has been described as obesity.

From samprapti (Pathogenesis) it is clearly seen that not only does aharaj but also viharaj, manas and bijdoshaj factors are associated with the jathragni mandya which ultimately results into the accumulation of medo and mamsa dhatu.

Although Charak has explained the complications (updravas) of sthoulya if not cared on time, drugs/herbs of antisthoulya property must possess the following characteristics:

Rasa – tikta, katu, madhura, kashaya
- Guna – laghu, teekshna, snigha, sukshma
- Veerya – ushna
- Vipaka – katu
- Karma – tridosha shamaka, vedanasthapana, lekhana, shoolahara, shothahara.

Besides, the popular remedial guideline narrated by Charak is guru apatarpan which appears quite scientific as guru acts against reducing vayu and agni and at the same time apatarpan is essential to cut off the meda dhatu.So, the treatment aims at decreasing the size of abdomen per se.

CONCLUSION

Ayurveda describes the aetiopathology of Medo roga (sthoulya or obesity), pathogenesis, risk factors, complications and its management. In addition to the dietary regimen, one of the best medications guggulu has tremendous potential to cut off the extra fat. Many researches and studies have been done in this regard in the past, however, the desired result can't be seen among the patients who take it. It might be because the guggulu they use may not be of pure kind. So, it is required to select the best raw herb prior to use it as a medication.

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