

CONCEPTUAL STUDY OF RELATION BETWEEN MEDA DHATVAGNI AND
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ABSTRACT

Obesity is defined as a condition where one is at least 20% more than ideal body. Obesity is a common health problem and its prevalence is increasing globally. Abnormal accumulation of *Meda dhatu* in body is known as *Medo dushti*. *Medo dushti* includes several numbers of other *Medo vikaras*, which are collectively known as *Medoroga(Sthaulya)*. Ayurveda considers *sthaulya* as a disease due to *Ati Santarpana*. Obese patients are nourished excessively by *Meda dhatu* and other remaining *dhatu* get malnourished. In these phenomena *Meda dhatvagni* play a major roll. Due to *Meda dhatvagnimandhya* formation of other *dhatu* doesn't take place and only *Meda dhatu* increases and which ultimately known as *Sthaulya*.

KEYWORDS: *Sthaulya*, *Meda Dhatvagni*, Obesity, *Medo Rog*.

INTRODUCTION

Sthaulya is described as excessive and abnormal increase of *meda dhatu* along with *mamsa dhatu* resulting in pendulous appearance of buttocks, belly and breasts; however increased bulk is not matched by corresponding increase in energy. The obesity as described as '*Medoroga*' in ayurveda and said that *Sthaulya* the disease may be compared to obesity in modern medicine, wherein the lipid metabolism is chiefly altered. Obesity (*Sthaulya*) is one among the major diseases of modern era. In modern era with continuous changing lifestyles and environment and changed diet habits, man has become the victim of many diseases caused by unwholesome dietary habits; the "obesity" is one of them. A recent world health study reports that obesity is included among the top 10 selected risks to health. Obesity is a blessing of the modern age of machines and materialism. It occurs as a result of lack of physical activity with increased intake of food. Everybody is busy and living fast and stressful life. High caloric, fast food consumption is also increasing. The industrialization, stress during the work, dietary habits, lack of exercise, and various varieties among the daily diet, e.g., fast food, frozen fruits, increased amount of soft drinks and beverages, canned foods result into the clinical entity, which we can call as obesity. In the recent years, obesity attracted the attention of the medical fraternity. It is the most common and adverse nutritional problem in the industrialized world. Moreover, now obesity has become a global problem. Obesity is such a disease, which

provides the platform for so many hazards such as hypertension, coronary heart disease, diabetes mellitus, osteoarthritis, infertility, and impotency as psychological disorders such as stress, anxiety, and depression. These indicate the weakening of the various body systems which, in turn, affects the physiological equilibrium. Thus, the mortality and morbidity rates are more in an obese person. The aim of Ayurveda Shastra is to maintain swasthya of swastha purusha and to cure the disease of pathological condition of the patient. In other words comparatively it is easy to help an underweight person rather than overweight. *Sthaulaya* (obesity) can either be due to an actual increase in fat component (*Medodhatu*) or due to malfunctioning of fat metabolism (*meda dhatvagni mandhya*). Obesity is the condition in which the natural energy reserve is increased to a point where it is associated with certain health condition or increased mortality. It has been estimated affects 20 – 40% of adults and 10- 20% of children and adolescents in developed countries. According to W. H. O., the world wide latest report of prevalence of obesity states that around 250 million cases of obesity are reported every year afflicting about 7% of adult population. India is following a trend of other developing countries having tendencies of steadily more obese.

LITERARY REVIEW

a] *Samhita Kala: (200 B.C. - 400 A.D.)****Charak Samhita: (2 B.C.)***

In *Samhita kala*, *Charak Samhita* has described *Sthaulya* under "Ashtau Nindit Purusha" (eight despicable personalities). According to *Charak*, its causative factors mainly exogenous and hereditary component along with its pathology, sign and symptoms. Prognosis and management have been narrated in detail. *Ashta Dosha* of *Sthaulya* and its etiopathogenesis and pathophysiology of excessive hunger and thirst and complication due to its ignorance and definition and cardinal symptoms of *Sthaulya* are described in detail *Madhyaam praamna Sharira* i.e. well built and well proportionate physique is considered as the best. Besides that, other aspect of *Sthaulya* and line of treatment has been described on various places in *Charak Samhita* like *Tail Sevana yoga*,^[1] *Svedana Ayogya*, *Sanshodhan Yogya*^[2] and *Adhika Doshyukta Rogi*.^[3] It is also mentioned as disorder of *Shleshma Nanatmaja*,^[4] *Santarpana Nimittaja*,^[5] *Ati Brimhana Nimittaja* and *Sanshodhana Yogya*.^[6] Under the caption of *Praamna Pariksha*, *Gramya Ahara* and *Gramya Vasa* is mentioned as root cause of all illness due to flabbiness of body and excessive accumulation of *Meda*.

Sushruta Samhita: (2 A.D.)

In *Sushruta Samhita*, *Sushruta* has narrated the etiopathogenesis of *Sthaulya roga* on the basis of an endogenous entity being caused due to "Dhatvagni mandya". *Sthaulya* is considered as the physical condition of the body, result of vitiated *Meda Dosha*,^[7] and as symptom of disrupt *Medovaha Strotas (Su.Sha.9/12)*, and *Rasa Nimitaja disorders*.^[8] A new synonym "Jatharya" has been used in (*Chi 12/11*) for *Sthaulya*. Further elaboration of line of treatment has been done by *Sushruta* and so many remedies described for the management of *Sthaulya* at different places which indicates fulminating condition of the disease in that time of society.

Kashyapa Samhita: (6 A.D.)

Kashyapa has given some new aspects of management while narrating *Medasvi Dhatri Chikitsa* and suggested *Raktamoksana* (blood letting) as one of the best treatment for *Medasvi Dhatri* i.e. obese frostier mother. Present available *Kashyapa Samhita* is incomplete and many chapters are missing on the basis of scattered reference about *Sthaulya* available in this text, it can be presumed that there might be detailed description of this disease. *Sthula* and *Ati Sthula* word are frequently used at different places especially in description of Anthropology in *Sutra Sthana* which stands for largeness, bigness, bulkiness etc. *Ati Sthula* is classified under eight censurable physiques while describing the anthropology in *Su 28/6*. *Sthaulya* is one of the disorders where *Snehana Karma* is contraindicated, as it increases severity of disease. Despite of that in some condition it can be used with *Triphala*, *Lavana*, and *Vyosha*.

Bhela Samhita (7 A.D.) and Harita Samhita: (10-12 A.D.)

Present available *Bhela Samhita* and *Harita Samhita* are controversial and incomplete. Neither detailed description regarding *Sthaulya* is available nor has addition in concepts related to *Sthaulya* been done by *Harita*. In *Bhela Samhita* *Sthaulya* is described as a disorder of vitiated *Meda* in chapter on *Samshana Paridhaniya*.

Madhava Nidana (7 A.D.)

Madhava Nidana has elaborated the pathophysiology of this disease on the basis of fat tissue and fat deposit and mentions natural tendency towards android obesity.^[9] *Madhavakara* has elaborated the symptomatology of *Sthaulya* and new symptoms of the disease like *Moha* have been included.

Ashtanga Sangraha (6 A.D.) and Ashtang Hridaya (7 A.D.)

Vruddha Vagbhatta and *Vagbhatta* have elaborated etiopathogenesis of *Sthaulya* on the basis of formation of *Aam* and disturbance of the process of *Dhatu Parinamana*. i.e. inter cellular metabolism and mechanism of respective *Agni*, which later on understood as process of metabolism in modern era. In *Ashtanga Hridaya*, *Sutrasthana* Chapter 14 and in *Ashtanga Sangraha Sutrasthana* Chapter 24, they have mentioned various therapeutic and prophylactic measures to cure and prevent this disease and considered *Rasanjana*^[10] as a drug of choice for *Sthaulya*. But after observing challenging nature of the disease they concluded that there is no treatment of excessive obesity.^[11]

Sharangdhara Samhita (13th Century)

In this text, *Sthaulya* was described by the name of *Medo-Dosha*. *Medo-Dosha* is only one type and it is due to aggravation and dominance of *Vata*. In this text *Sweda* has been mentioned as *UpaDhatu* of *Meda* and *Mala of Rasana*, *Danta*, *Kaksha*, *Medhradi* as *Mala of Jatharastha Meda* (fat in abdomen and omentum) is nourished by *Vrikka*. i.e. role of renal – suprarenal gland was first time observed by him. Sequential *Dhatupaka Kala* of one month for seven *Dhatu* is mentioned in *Pu 6/10*. On this basis, *Medaparinamana Kala* can be calculated as 15 days and 108 minutes. Excessive intake of *Sneha* may speed up conversion period. *Sthaulya* was narrated as a characteristic of *Shleshma Prakriti*.

Definition of *Sthaulya*

A person having pendulous appearance of *Sphika* (Hip), *Udara* (Abdomen) and *Stana* (Chest) due to excess deposition of *Meda* along with *Mamsa Dhatu* and also having unequal or abnormal distribution of *Meda* with reduced zeal towards life is called "Atisthula". In short it can be defined as "A person who due to extensive growth of fat and flesh is unable to work and disfigured with pendulous buttocks, belly and chest is called *Atisthula*"^[12] and the condition is termed as *Ati Sthaulya*".

Aetio-pathogenesis of Sthaulya

All the *Nidana* described by various *Acharyas* for *Medoroga* can be classified under four broad categories as following,

1) Aharatmaka Nidana (dietary)

- *Santarpana, Adhyashana,*
- *Guru Aharasevana* (heavy digestible food),
- *Madhura Aharasevana* (excessive sweat intake),
- *Snigdha Aharasevana, Navanna sevana* (new seed),
- *Nava Madyasevana* (new alcohol),
- *Mamsa Sevana, Dadhi Sevana, Ikshu Vikara Sevana, Guda Vikara Sevana etc.*

2) Viharatmaka Nidana (life style related)

- *Avyayama* (lack of physical exercise),
- *Avyavaya* (lack of sexual life),
- *Diwaswaap* (day time sleep),
- *Swapnaprasangat* (long sleep),
- *Asana Sukham* (excessive sitting),
- *Gandhamalyanusevana* (using perfumes, garlands),
- *Bhijnottara nidra* (sleeping after meal),
- *Bhojanottar snaana* (bathing after taking the meal) etc.

3) Manasika Nidan (Psychological factors)

- *Harshmiyatvata* (uninterrupted cheerfulness),
- *Achintanat* (lack of tension),
- *Manasonivritti* (mental relaxation),
- *Priyadarshana* (watching of beloved),
- *Saukhyena* (complete happiness) etc.

4) Anya Nidana (other causative factors)

- *Bijadoshaswabhaba* (hereditary),
- *Amarasa, Snigdha Madhur Basti Sevana* (administration of Unctuous & Sweet enema),
- *Snigdha Udvartana* (unctuous unction),
- *Tailabhyanga* (oil massage).

Rasa	Guna	Veerya	Vipaka	Karma	Panchbhautika composition
Madhura	Guru, Sheeta Manda, Sthira, Shlakshna, Pichchila, Snigdha, Sthula, Sandra	Sheeta	Madhura	Brimhana, Santarpana, Vrishya, Rasayana, Abhishyandi	Prithvi, Jala

Ayushohrasa (Diminution of lifespan): Life expectancy decreased because of over production of *Medo Dhatu* at expense of other *Dhatu*s therefore, other *Dhatu*s could not be nourished properly. Obesity leads to various co-morbidity conditions thereby decreasing the life expectancy of the obese person.

Javoparodha (Lack of enthusiasm) - The *Shaitihilya* (flabbiness), *Saukumarya* (delicacy) and *Guruta* properties of *Meda Dhatu* causes *Javoparodha*. Thus these persons are slow to initiate the work.

Kricchavyavaya (Difficulty in sexual act) - Due to obstruction in genital passage by *Meda Dhatu* and less production of semen the sexual act becomes difficult.

Another classification of the causative factors of *Sthaulya* can be done on the basis of *Asamanya-Vishesh siddhanta* advocated by *Acharya Charakav*, according to which the increase or decrease in *Dhatu* is based on the quality and quantity of nutrition provided to them. Excessive consumption of substances similar to *Meda* (*Guna samanya*) and the action that have similar action of *Meda* (*Karma samanya*) leads to an increment of *Meda* in the body. Thus based on this concept, the *Nidanas* of *Medoroga* can be classified as:

- **Dravya Samanya:** consumption of animal & vegetable fats (*Ghee, taila, vasa, majja*).
- **Guna Samanya:** consumption of food with *Snigdha, Guru guna* e.g. milk, masha, *sheeta veerya dravya*, substances with *madhura rasa & vipaka*.
- **Karma Samanya:** *Divaswapna, Avyayama, Avyavaya, Sukhasana, Taila abhyanga, Snigdha udvartana*, etc.

The fundamental cause of obesity and overweight is an energy imbalance between calories consumed and calories expended. Globally, there has been an increased intake of energy-dense foods that are high in fat and an increase in physical inactivity due to the increasingly sedentary nature of many forms of work, changing modes of transportation, and increasing urbanization.

RUPA (Clinical feature)

Which means that due to inordinate increase of *Meda* and *Mansa Dhatu*s, the body gets disfigured by pendulous buttocks, abdomen, breast (*Chal Sphika-Udar-Stana*) and that increased bulk (adiposity) is not accompanied with the corresponding increase in energy (*Ayathopchayotsaho*). So, the person has less enthusiasm in his physical activity. Besides these cardinal symptoms, eight *Doshas* (disability) of *Medoroga* have been mentioned along with their elaborated pathogenesis which is as follows:

Daurbalya (Debility) This result because of the deranged metabolism owing to malnourishment of the *Dhatu*s.

Daugandhya (Foul smelling of body) Bad smell results due to excessive sweating, innate quality of *Meda Dhatu* and morbid nature of vitiated *Meda*.

Swedabadha (Distressful sweating) On account of the admixture of *Kapha* with *Meda, Vishyandi, Bahutva* and *Guru* properties of *Meda* and its inability to bear the strain of exercise it results in *Swedabadha*.

Kshudhatimatrata (Excessive hunger) or Pipasatiyoga (Excessive thirst) Because of increased *Agni* in *Koshtha*

and vitiation of *Vata* by obstruction of *Meda* it results in excessive appetite and thirst.

Sampraptiviii (pathogenesis): If an individual indulge in frequent consumption of *Shleshmala* diet (*Madhura, Guru, Sheet, Snigdha*) without undertaking adequate physical activity and rather sleeps for a long time or in other way, over indulgence in *Kapha & Meda Sadharmi. Amarasa* containing etiological factors leads to *Kapha* predominant *Dosha* increase in the body, which due to its very nature produces *Agni* disturbance causing the production of *Ama*. This *Ama* goes directly to *Meda Dhatu* & leads to increase and accumulation of *Meda* by creating *Medodhatwagni-mandya*. Vitiated *Kapha & Meda* causes *Medovaha Sroto Sanga* (obstruction), leading to *Margavrodha* of *Vata*. This vitiated *Vata* circulates in whole body especially in the *Kostha*, later on causing digestive fire increase (*Jathragni Sandhukshana*) which results in stimulate of appetite & digestion (*Kshudhaadhikya & Shighra Jarana*) of *Ahara. Medodhatwagni Mandhya* takes place due to which the capacity to digest *Medamsa* by the *Medodhatwagni* is hampered, leading to the formation of *Apakwa* (undigest) *Meda* which is incapable of nourishing the further *Mamsa Dhatu*. The *Ama Meda* gets accumulated in *Sarvanga* especially in the *Sphig-Udar-Stana* regions resulting in *Sthaulya*. The time required to provide nourishment to *Dhatu* of whole body varies from one day, six daysxi and one monthxii. But in case of patients with *Beeja Dosha*, it is *Khalekapota Nyaya* which becomes effective.

The basic components that get vitiated in the pathogenesis of *Sthaulya* are described below:

Dosha

Though *Medoroga* is a *Kapha* predominant *Vyadhi* yet the involvement of *Vata* and *Pitta* cannot be neglected. So, all the three *Doshas* are involved in the pathogenesis of *Medoroga*.

Kapha: most of the *Medoroga* symptoms come under the category of *Kaphavridhhi* i.e. *Alasya, Gatraseda, Nidradhikaya*, etc. Usually the *Medorogi* belongs to *Kapha Prakriti* and are slow and lethargic in physical activity.

Pitta: most of the patients have *Teekshnagni* which indicates the involvement of *Pitta Dosha*. Most of the *Medoroga* patients present with *Ati Kshudha* due to increase of *Pitta* by *Ushna Guna. Margavarodha* due to *Medovridhhi* stimulates *Samana Vayu* to increase the *Jatharagni*. So person has voracious appetite and good digestion power.

Vata: In this disease *Vata* has been mentioned in the state of *Aavrta* which provokes the *Agni* ultimately increasing the demand for the food (*Abhyavaharana Shakti*).xiii Also *Vyana Vayu* is responsible for proper circulation and distribution of *Dhatu*.xiv Due to, *Sanga*

in *Medovaha Srotas* the nutrients cannot be carried by *Vyana Vayu* to their respective *Dhatu*s. The process of circulation, digestion and proper distribution of *Dhatu*s are controlled by *Samana* and *Vyana Vayu*. Hence, involvement of *Samana Vayu* can be clearly postulated with the evidence of *Agnisandhukshana* whereas improper distribution of fat in the body proves the involvement of *Vyana Vayu*.

Dushya: *Acharya Sushruta* has mentioned *Medoroga* as a *Dushya* dominant disorderxv and in this disease the excessive production of abnormal *Meda Dhatu* is clearly visualized. *Kapha* is seated in *Rasa, Mamsa, Meda, Majja* and *Shukra Dhatu*s. On the basis of *Ashrayashrayeebhava* vitiation of *Kapha* also leads to vitiation of above *Dushyas*. Also *Kapha* and *Meda* have similar properties. Finally ultimately vitiation of *Meda Dhatu* also occurs. In the disease, due to over consumption of *Guru, Snigdha Pradhana Dravyas* with increased *Agni, Anna Rasa* is formed which leads to increase of *Meda Dhatu* directly by passing the *Rakta* and *Mamsa Dhatu* as explained by *Dalhana*.

Srotas

In *Medoroga, Medovaha Srotas* is mainly involved along with the *Rasavah* and other *Srotasa*. Basically it is a *Sanga* type of *Srotodusti* leading to *Vimargagamana* of *Meda Dhatu* also. Above *Shloka* indicates the clear involvement of *Medovaha Srotas* along with *Rasavah Srotas. Atisweda* and *Daurgandhya* indicate the involvement of *Swedavah Srotas*. Presence of *Ati Pipasa* indicates the involvement of *Udakavah Srotasa*. In the pathogenesis of *Medoroga*, increased fat deposition inside the muscle (*Vasa*) indicates the involvement of *Mamsavah Srotasa*.

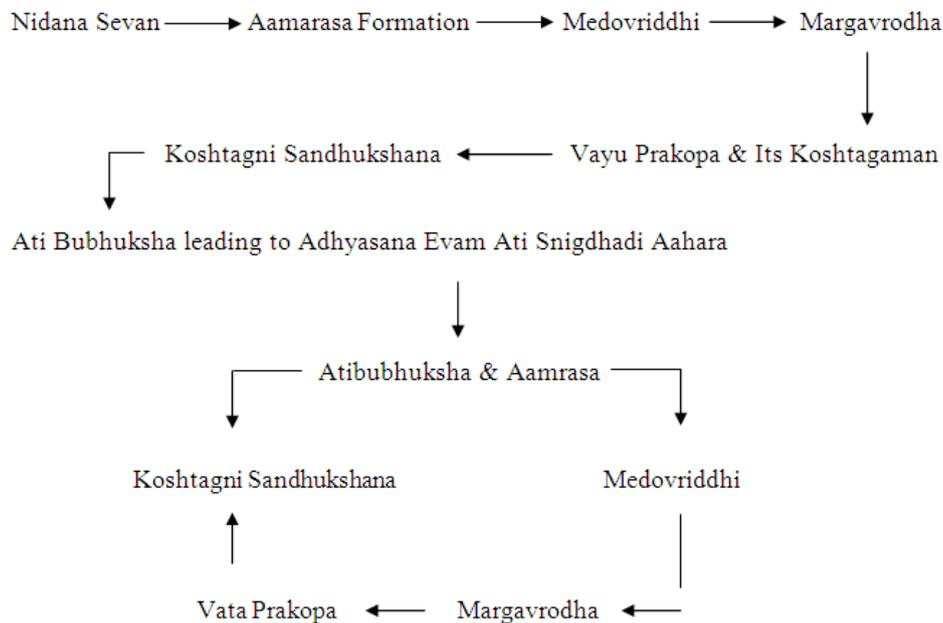
Agni

Mandagni at *Jatharagni* or *Dhatvagni* level is considered as root cause of all diseases. Due to *Mandagni*, formation of *Ama* occurs. Some of the disorders like *Ajirna, Alasaka*, and *Visuchika* emerge are the result of derangement of *Jatharagni* while disorders like *Medoroga* results from derangement of *Dhatvagni*. On this basis, it seems that individual *Agni* has its own pathological phenomenon. In *Medoroga*, due to vitiation of *Vata* by obstruction of *Meda, Teekshnagni* is a prominent feature. Here a question arise, how *Ama* formation can occur instead of *Teekshnagni*. *Chakrapani* and *Dalhana* have tried to clarify this controversy by giving explanation that in the stage of *Teekshnagni*, person goes for *Adhyashana, Kalavyatita Ahara Sevanaa* again and again, which leads to disturbance in *Agni* and subsequently formation of *Ama* may take place. Moreover, *Dalhana* has explained that in the *Medoroga* formation of *Ama* is more due to decrease level of *Medodhatvagni* than *Jatharagni*.

Hence the probable hypothesis about the pathogenesis of disease dyslipidemia is the production of *Ama Dosha* at various levels, particularly at the level of *Jatharagni*

(*Jatharagnimandyata*) and *Sama Meda Dhatu* at the level of *Dhatwagni* (*Dhatwagnimandyata*). Here excessive *Madhuratarana Annarasa* is produced which in turn leads to the production of *Ama Dosha* and causing retrovert effects on *Agni*. Dyslipidemia seems to be a disease of *Agnivikriti* vis a vis defective metabolism. In this disease *jatharagni* and *Dhatwagni* especially *Medodhatwagni* are vitiated. Due to this *Dhatuparinama* (product of digestion) is affected so that *Medo Dhatu* is

not formed properly. *Ama Dosha* is formed at various levels and it interacts with different *Dhatu*s. In nutshell due to *Medodhatwagnimandyata* excessive production of *Sama Meda Dhatu* is resulted which causes the *Medo Roga*. This *Sama Meda* is accumulated in the body and deposits in various *Srotases* leading to *srotorodha* resulting in various complications. On the basis of their clinical manifestations *Sthaulya* may be correlated with the term *Medo roga*.



DISCUSSION

Sushruta has narrated the etiopathogenesis of *Sthaulya Roga* on the basis of an endogenous entity being caused due to “*Dhatvagni Mandya*” (*Sushruta Samhita, Sutra 15*). In *Sthaulya*, *Tikshnagni* occurs. As per the references of *Sushruta* and further clarified by *Dalhana*, it is more logical to accept that after passing, *Rakta* and *Mamsa Dhatu* from *Rasa* excessive *Medo Dhatu* is produced. *Jatharagni* is found to be excessive, but *Medodhatvagni* is found to be in *Manda* condition. It is due to *Avarana* of *Vayu* in *Koshtha*. Therefore, person indulges in more food consumption, which produces excessive *Meda* and this vitiated cycle goes on. Due to obstruction by *Meda*, *Vyana Vayu* cannot transport nutrient to other *Dhatu*, so *Medadhatu* increases and *Uttardhatu* decreases. Due to *Medodhatvagnimandya* (due to unavailability of getting *poshakansa* of *Medodhatvagni* nourished through *Jatharagni*) condition worsens and also further *Dhatu*s are not produced properly. Due to *Medodhatwagni mandhya Medas* is not converted to further *dhatu*s. The increased *Medas* do *avarana* to *marga* of *Vata*. So *vayu* will circulate in *koshtha* more and increases *Koshthagni*. Then the patient eats more and it is again converted into *Medas*. Increased *Medas* again prevent the conversion of *Medas* to *Uttardhatu*s by *avarana*.

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