

A CONCEPTUAL STUDY ON ROLE OF GUDUCHI TRIPHALA KWATHA WITH THREE DIFFERENT PRAKSHEPA CHURNAS IN THE MANAGEMENT OF OBESITY.

Neethu Divakaran¹, Arun Pratap², Lekshmi R³, Shan Sasidharan⁴

¹ PG Scholar, ²Professor & HOD, ³Associate Professor, Dept. of Kayachikitsa, Pankajakasthuri Ayurveda Medical College & PG Centre, Kattakkada, Thiruvananthapuram, Kerala, India. ⁴Director, Research and Development, Pankajakasthuri Herbal Research Foundation, Kattakkada, Thiruvananthapuram, Kerala, India.

Corresponding Author: neethudivakaran1994@gmail.com

<https://doi.org/10.46607/iamj06p7052023>

(Published Online: July 2023)

Open Access

© International Ayurvedic Medical Journal, India 2023

Article Received: 11/06/2023 - Peer Reviewed: 27/06/2023 - Accepted for Publication: 18/07/2023.



ABSTRACT

Obesity is a chronic health condition that can lead to a wide range of health consequences, such as cardiovascular disease, type 2 diabetes, certain cancers, and musculoskeletal disorders. *Acharya Vangasena* in *Sthoulya chikitsa* has mentioned *Kwatha* prepared out of *Guduchi*, and *Triphala* added with *Lohabhasma* or *Shilajathu* or *Guggulu* helps in relieving Obesity. The pathogenesis of *Sthoulya* can be appreciated under the process of adipose tissue dysfunction, low antioxidant defence, formation of reactive oxygen species, and lipid peroxidation, which is considered the major cause of Obesity and its comorbidity. While analysing the properties of drugs mentioned in the formulation, most of the drugs have *Medohara* and *Rasayana* in action. *Kwatha* with different *Prakshepa churna* has different actions at specific *Dhathus*. *Guduchi Triphala Kwatha* with *Lohabhasma* possess *Medoharatva* and *Rasayana* action at the level of *Rasa* and *Raktha*. *Shilajathu* acts on *Mamsa Medo dhathu*, while *Guggulu* acts on *Asthi Majja dhathu*. These drugs have proven antihyperlipidemic, antihyperglycemic, and antioxidant properties. So, this formulation can be used as a *Shamana dravya* for breaking the pathogenesis of Obesity and reducing the burden of Obesity-related diseases. This article highlights the Ayurvedic understanding of Obesity and the role of *Guduchi Triphala Kwatha* with three different *Prakshepa churnas* in managing it.

Key words: Obesity, *Sthoulya*, *Guduchi Triphala Kwatha*, *Prakshepa churnas*.

INTRODUCTION

Obesity is a complex condition with serious social and psychological dimensions, affecting all ages and socio-economic groups. According to the ICMR-INDIAB study 2015, the prevalence rate of Obesity and Abdominal Obesity is 31.3% and 36.3%, respectively. Abdominal Obesity is considered one of the major risk factors for cardiovascular diseases¹.

The rising epidemics and sedentary lifestyles have altered the behavioural patterns of communities. The intake of a high proportion of carbohydrates, refined sugar, and saturated fats, along with less physical activity, results in a high Obesity rate.

Ayurveda defines health as the proportionate distribution of bodily elements, *Sama Samhanana*, in association with the pleasantness of *Atma*, *Indriya*, and *Manas*². A person having an excessive accumulation of *Medas* and *Mamsa* leading to flabbiness of hips, abdomen, and breast is categorised as *Athisthula*.³ *Sthoulya* is described under one among the *Bahudoshas Lakshanas*⁴, *Twenty Sleshmaja Nanatmaja Vikara*⁵, *Santarpanotha Vikara*⁶, *Medo dushti*, and as a *Rasanimitaja Vyadhi*⁷. In *Charaka Samhita*, it is mentioned that drugs which are having *Vata Kaphahara* and *Medonashaka* properties are considered ideal for *Samshamana* in *Sthoulya*.⁸

In *Vangasena Samhita*, *Kwatha* prepared of *Guduchi* and *Triphala* along with *Loha Bhasma* or *Shilajathu* or *Guggulu* has been mentioned for the treatment of *Sthoulya*⁹. This article aims to analyse the efficacy of the above formulation to manage Obesity.

OBESITY¹⁰

Obesity is a chronic, multifactorial medical condition characterized by excess body fat that develops as a result of long-term energy imbalance, which means excessive calorie consumption and insufficient energy output. This extra energy gets accumulated in the form of adipose tissue. A BMI between 25 kg/m² and 30 kg/m² is considered overweight, and greater than 30 kg/m² is considered obese.

Etiology -

1. Overeating
2. Sedentary lifestyle
3. Genetic predisposition

4. Diet largely derived from carbohydrates and fats than protein.
5. Secondary Obesity may be seen as a result of underlying diseases such as Hypothyroidism, Cushing's syndrome, Insulinoma, and Hypothalamic disorders.

Adipocytes and Adipose tissue¹¹

Adipocyte is considered a storage depot of fat as well as endocrine cells that release energy-balancing regulating hormone Leptin, Cytokines, Prothrombotic agents, and Angiotensinogen. Adipose tissue is of two types- white adipose tissue (WAT) and brown adipose tissue (BAT). White adipose tissue stores energy in the form of triglycerides and cholesterol, while brown adipose tissue involves in fat oxidation. Obesity occurs when there is an increase in the number or size of the adipose tissue with increased fat storage and reduced fat oxidation. Mitochondrial oxidative stress in BAT causes loss of mitochondria which leads to whitening, increased lipid storage, and hypertrophy.

Adiponectin - an adipose-derived protein, plays an important role in glucose and lipid metabolism by increasing insulin sensitivity, controlling blood pressure, coagulation, and vascular health. An increase in adiponectin causes insulin intolerance which likely contributes to Obesity related pathologies.

Free radicals, Lipid peroxidation, and Antioxidants¹²

Free radicals are the natural by-products of metabolism. Free radicals produced daily are removed by the efficient antioxidant system in the body. A free radical is an atom or a molecule having unpaired electrons which are neutralised by antioxidants. There are different enzymatic and non-enzymatic antioxidants. The body produces enzymes such as superoxide dismutase (SOD), catalase, glutathione peroxidase, and glutathione reductase. At the same time, non-enzymatic defence consists of reduced glutathione, vitamins, and cysteine.

Free radicals play an important role in creating oxidative stress at cellular levels causing lipid peroxidation, where the double bonds of carbon atoms in un-

saturated fats are removed by oxygen molecules. The free radicals formed by a chain reaction may change the structure of a lipid, making it entrapped in an artery or may mutate and grow as tumours. Or the cascading damage may even change the DNA code.

STHOULYA¹³

In Ayurveda, the features of Obesity are understood and described as *Sthoulya*. *Sthoulya* is defined as *Upachitha Sareeratvam*, which is considered as the basic factor for the manifestation of the condition *Athi Sthoulya*.

Samprapthi -

Aharaja Nidana, like intake of *Guru Madhura Sheetha Pichila Snigdha Santharpanotta ahara* and *Viharas* like *Avyavaya, Divaswapna, Achintana, Nithya harsha*, etc., causes derangement of *Ahara rasa* which directly enhances the formation of *Medo dhathu* due to *Samana guna*. According to *Acharya Susruta*, *Sthoulya* is a *Rasanimitaja Vyadhi*. Improper formation of *Rasadhathu* causes *Medo-dhatvagnimandhya*, which leads to excessive formation of *Medo dhathu*. *Kapha* is the *Ashraya sthana* of *Rasa* and *Medodhathu*. Also, *Malarupa* of *Rasa* is *Kapha*. So, the vitiation of *Rasa* and *Medo-dhathu* will lead to the vitiation of *Kapha*. Increased *Kapha* and *Medas* cause *Srotorodha* in *Koshta*, ob-

structing the pathway of *Koshtasritha Samana Vayu*, resulting in *Ati Santhukshana* of *Jatharagni*. *Medo-dhatvagnimandya*, along with good *Jataragni*, causes the accumulation of more *Medo dhathu* in the body, which in turn results in *Athi Sthoulya*.

Sthoulya and its probable complications –

1. If there is gradual vitiation of *Medovaha srothas*, it may lead to *Prameha*.
2. Excessive accumulation of *Kapha* and *Medas* in *Dhamani* may result in *Dhamani Praticaya* gradually leading to *Hridroga*.
3. *Snehana, Dhridatva*, and *Asthipushti* are the main functions of *Medo dhathu*. Due to *Srotorodha, Kshaya* of the next *Dhathus*, like *Asthi* and *Majja*, happens to result in *Asthisoushrya*.

AYURVEDIC PHARMACOLOGY OF INGREDIENTS¹⁴

The pharmacological action of Ayurvedic drugs is explained in terms of *Rasa, Guna, Virya, Vipaka*, and *Karma*. Properties of individual drugs of *Guduchi Triphala Kwatha* with *Prakshepa Churnas* are compiled in Table. 1 and its role in managing Obesity and correcting associated pathology is analysed.

Table.1 Ayurvedic Pharmacology of Ingredients

Sl. No.	Ingredients	Latin name	Rasa	Guna	Virya	Vipaka	Effect on Dosha
1.	<i>Guduchi</i>	<i>Tinospora cordifolia</i>	<i>Tikta, Kasaya</i>	<i>Laghu</i>	<i>Usna</i>	<i>Madhura</i>	<i>Tridosahara Medohara Rasayana</i>
2.	<i>Haritaki</i>	<i>Terminalia chebula</i>	All rasa except <i>Lavana</i>	<i>Laghu, Ruksha</i>	<i>Usna</i>	<i>Madhura</i>	<i>Tridosahara Anulomana Rasayana</i>
3.	<i>Vibhithaki</i>	<i>Terminalia bellarica</i>	<i>Kashaya rasa</i>	<i>Laghu, Ruksha</i>	<i>Usna</i>	<i>Madhura</i>	<i>Kaphapittahara Bhedana</i>
4.	<i>Amalaki</i>	<i>Embllica officinalis</i>	All rasa except <i>Lavana</i>	<i>Laghu, Ruksha</i>	<i>Sheetha</i>	<i>Madhura</i>	<i>Tridosahara Rasayana</i>
PRAKSHEPA CHURNAS							
5.	<i>Loha Bhasma</i>	Iron powder	<i>Tikta, Madhura, Kashaya</i>	<i>Sara, Guru, Sheetha</i>	<i>Sheetha</i>	<i>Katu</i>	<i>Tridosahara Medorogahara, Mehahara, Lekhana, Rasayana</i>
6.	<i>Shilajathu</i>	Black Bitumen	<i>Kashaya</i>	<i>Guru, Snigdha, Mrdu</i>	<i>Sheetha</i>	<i>Katu</i>	<i>Yogavahi, Medoghna, Chedana, Rasayana</i>
7.	<i>Guggulu</i>	<i>Commiphora mukul</i>	<i>Katu, Tikta, Kashaya</i>	<i>Laghu, Sara, Vishada</i>	<i>Usna</i>	<i>Katu</i>	<i>VataKaphahara Medohara, Lekhana, Rasayana</i>

DISCUSSION

The pathogenesis of Obesity, or *Sthoulya* in Ayurveda, can be understood through various processes involving adipose tissue dysfunction, free radical formation, oxidative stress, and lipid peroxidation. Excessive accumulation of fat in their depots can be seen as the direct transformation of *Ahararasa* into *Medo dhathu*. Impairment in brown adipose tissue function reduces fat oxidation, leading to further fat accumulation, which can be considered as *Medo-dhatvagnimandhya*, resulting in *Medovridhi*. Impairment in glucose and lipid metabolism at the cellular level leads to the formation of free radicals and oxidative stress. This can be viewed as the development of *Ama* at the level of *Dhatus*. Oxidative stress further promotes lipid peroxidation, causing structural and functional abnormalities in lipids. This contributes to the development of Atherosclerosis and its related diseases. This can be understood as *Medo dhathu dushti* leading to the *Samprapti* of *Dhamani pratichaya*. Excessive lipid accumulation also leads to the excess formation of circulating free fatty acids, which can result in insulin intolerance. This aspect can be observed in the development of *Prameha purvarupa* due to *Sthoulya*.

In the management of *Sthoulya*, we have to consider *Agnidushti*, *Vata vilomata Srothorodha*, and the involvement of *Tridosha*. According to *Acharya Charaka*, drugs possessing *Vataghna* and *Sleshmamedohara* properties are considered ideal for *Samshamana*. *Acharya Susruta* has included *Lekhana* and *Chedana Dravyas* in managing Obesity. Analyzing the properties of the drugs mentioned above, it is understood that they possess *Laghu*, *Ruksha*, *Ushna*, *Madhura Vipaka*, and *Tridoshahara* properties. *Laghu guna* is *Langhana* in nature, while *Ruksha Guna* is *Soshana*, which is ideal in *Medoharatva* removing *Srothorodha*. The *Madhura Vipaka* of the formulation helps in *Vatanulomana*. *Prakshepa dravyas* added with *Kwatha* can assist in enhancing the pharmacological action and improving the absorption of the active drug. Thus, reaching the target tissues efficiently. These properties are useful in breaking the *Samprapthi* of *Sthoulya*.

Role of Guduchi Triphala Kwatha in Obesity

The formulation is a combination of *Guduchi* and *Triphala*. *Acharya Vangasena* has explained to add *Loha Bhasma* or *Shilajathu* or *Guggulu* along with this combination may be in the view of their specific action in specific situations. *Guduchi* is known for its *Dipana* and *Rasayana* properties. *Dipana dravyas* primarily exhibit the qualities of *Agni* and *Vayu Mahabhutas*, which are opposite in qualities to *Medas* and *Kapha*, which are dominated by *Jala* and *Prithvi Mahabhutas*. Therefore, *Guduchi* may act by reducing *Kapha* and excess *Medas* at the level of *Srothorodha*. This can improve the functioning of insulin and thus helps in the proper metabolism of glucose and lipids. Furthermore, the combined effects of *Dipana* and *Rasayana Karma* may enhance the activity of antioxidant enzymes. This, in turn, reduces oxidative stress, leading to a decrease in free radical formation and lipid peroxidation. *In vitro* studies conducted on methanolic extracts of *Tinospora cordifolia* (*Guduchi*) stems have demonstrated inhibition of lipid peroxidation, the elevation of glutathione levels, and radical scavenging properties.¹⁵

Triphala, on the other hand, is considered best among *Rasayana dravya*. It also possesses *Laghu* and *Ruksha gunas*, which can act on *Kapha* and *Medas*. The aqueous extracts of *Triphala* fruits have been studied *in vitro* and found to contain flavonoids and total phenolic compounds, which contribute to their radical scavenging activities. This can potentially prevent complications associated with Obesity, such as Atherosclerosis.¹⁶ The combination of *Guduchi* and *Triphala* in the formulation can work synergistically in various aspects of Obesity, including reducing excess lipid storage, improving insulin function, and combating oxidative stress.

Guduchi Triphala Kwatha with Lohabhasma as a Prakshepa churna

Bhasma preparations are composed of nanoparticles, which are believed to have enhanced absorption and therapeutic efficacy compared to other forms of medicines. *Lohabhasma*, when combined with *Kwatha*, enhances enzymatic activity through its *Dipana* and *Rasayana* properties. Additionally, *Lohabhasma*

has *Lekhana karma* on the body, which aids in correcting imbalances in *Rasa* and *Rakta Dhatus*. This further contributes to the proper formation of *Mamsa* and *Medo dhathu*. Recent research has shown a high prevalence of Iron-deficiency Anemia in obese individuals.¹⁷ Administration of *Lohabhasma* along with *Kwatha* may help in relieving Iron deficiency anemia due to Obesity. Therefore, this *Kwatha* with *Lohabhasma* as *Prakshepa Churna* can act at the level of *Rasa* and *Rakta Dhatus*.

Guduchi Triphala Kwatha with Shilajathu as a Prakshepa churna

Shilajathu, with its *Yogavahi* property, can enhance the absorption and action of active drugs. It possesses *Chedana karma*, which means it has scraping and cleansing properties. It acts as an *Unmoolana*, helping to eliminate accumulated *doshas* in the *Srothas*. *Shilajathu* is considered an *Agrya Oushadha* for *Vasthi roga*. Type 2 Diabetes mellitus is a common consequence of Obesity. Hence, the combination of *Guduchi Triphala Kwatha* with *Shilajathu* as *Prakshepa churna* may act on *Mamsa* and *Medo dhatus*, targeting the underlying imbalances associated with Obesity and Diabetes. *In vitro* studies in *Shilajathu* shows antioxidant and anti-hyperglycemic activities.¹⁸ So the formulation may help in improving insulin sensitivity, regulating glucose metabolism, and reducing fat accumulation.

Guduchi Triphala Kwatha with Guggulu as a Prakshepa churna

Guggulu possesses *Lekhana karma* which primarily acts on *Kapha* and *Medas*. *Guggulu* is known as *Medo-Anilapaha*, meaning it helps in alleviating vitiated *Medo dhathu* without aggravating *Vata dosha*. *Guggulu* has demonstrated anti-inflammatory, anti-arthritis, and antioxidant properties.¹⁹ Osteoporosis and other bone disorders are common consequences of Obesity. In this context, *Guduchi Triphala Kwatha* with *Guggulu* as *Prakshepa churna* can act on the pathogenesis of *Asthikshaya* due to *Medodhatvagnimandhya*. So, this formulation acts at the level of *Asthi* and *Majja dhatus* promoting their proper formation and function.

CONCLUSION

Guduchi Triphala Kwatha, along with *Lohabhasma*, *Shilajathu*, or *Guggulu*, can be used as a *Samshamana Dravya* in the treatment of Obesity as the medicine acts on the pathological factors and break the chain reaction of free radical formation.

ACKNOWLEDGEMENT

I would like to express my gratitude to all my teachers and colleagues for their support and assistance in the publication of the paper.

REFERENCES

1. Pradeepa R, Anjana RM, Joshi SR, Bhansali A, Deepa M, Joshi PP, Dhandania VK, Madhu SV, Rao PV, Geetha L, Subashini R, Unnikrishnan R, Shukla DK, Kaur T, Mohan V, Das AK; ICMR-INDIAB Collaborative Study Group. Prevalence of generalized & abdominal obesity in urban & rural India--the ICMR-INDIAB Study (Phase-I) [ICMR- NDIAB-3]. Indian J Med Res. 2015 Aug;142(2):139-50.
2. *Susruta, Susrutha Samhitha*; translated by Prof. K.R. Srikantha Murthy, Varanasi: Chaukhambha Orientalia;2016; *Sutrasathana*, ch.15 slk. 41, pp.110.
3. *Agnivesha, Charaka Samhitha*, Vol I, text with *Ayurveda Dipika* commentary by *Chakrapanidatta*, translated by Ram Karan Sharma and Vaidya Bhagavan Dash. Varanasi: Chowkamba Publications; Reprint: 2016, *Sutra Sthana* ch.21, slk.3, pp.375.
4. *Agnivesha, Charaka Samhitha*, Vol I, text with *Ayurveda Dipika* commentary by *Chakrapanidatta*, translated by Ram Karan Sharma and Vaidya Bhagavan Dash. Varanasi: Chowkamba Publications; Reprint: 2016, *Sutra Sthana* ch.16, slk.13, pp.302.
5. *Agnivesha, Charaka Samhitha*, Vol I, text with *Ayurveda Dipika* commentary by *Chakrapanidatta*, translated by Ram Karan Sharma and Vaidya Bhagavan Dash. Varanasi: Chowkamba Publications; Reprint: 2016, *Sutra Sthana* ch.20, slk.17, pp.371.
6. *Agnivesha, Charaka Samhitha*, Vol I, text with *Ayurveda Dipika* commentary by *Chakrapanidatta*, translated by Ram Karan Sharma and Vaidya Bhagavan Dash. Varanasi: Chowkamba Publications; Reprint: 2016, *Sutra Sthana* ch.23, slk.6, pp.394.

7. *Susruta, Susrutha Samhitha*; translated by Prof. K.R. Srikantha Murthy, Varanasi: Chaukhambha Orientalia; 2016; *Sutrasathana*, ch.24 slk. 9, pp.179
8. *Agnivesha, Charaka Samhitha*, Vol I, text with *Ayurveda Dipika* commentary by *Chakrapanidatta*, translated by Ram Karan Sharma and Vaidya Bhagavan Dash. Varanasi: Chowkamba Publications; Reprint: 2016, *Sutra Sthana* ch.21, slk.21, pp.378.
9. *Vangasena, Vangasena Samhitha*, translated by Nirmal Saxena, Varanasi, Chowkhamba Sanskrit Series Office; 2014, ch.42, slk. 21, pp.589.
10. WHO Physical status: the use and interpretation of anthropometry. Report of a WHO Expert Committee. Geneva, World Health Organization, (Technical Report Series, No. 854), 1995:329
11. Gómez-Hernández A, Beneit N, Díaz-Castroverde S, Escribano Ó. Differential Role of Adipose Tissues in Obesity and Related Metabolic and Vascular Complications. *Int J Endocrinol*. 2016; 2016:1216783. doi 10.1155/2016/1216783. Epub 2016 Sep 27. PMID: 27766104; PMCID: PMC5059561.
12. Halliwell B, Cross CE. Oxygen-derived species: their relation to human disease and environmental stress. *Environ Health Perspect*. 1994 Dec;102 Suppl 10(Suppl 10):5-12. doi: 10.1289/ehp.94102s105. PMID: 7705305; PMCID: PMC1566996.
13. *Agnivesha, Charaka Samhitha*, Vol I, text with *Ayurveda Dipika* commentary by *Chakrapanidatta*, translated by Ram Karan Sharma and Vaidya Bhagavan Dash. Varanasi: Chowkamba Publications; Reprint: 2016, *Sutra Sthana* ch.21, slk 4-9, pp.374-375.
14. The Ayurveda Pharmacopoeia of India, Part I, Ed. I, 2001, Vol I, ISBN 987-81-901151-5-5
15. Priyanka Sharma, Bharat P. Dwivedee, Dheeraj Bisht, Ashutosh K. Dash, Deepak Kumar, The chemical constituents and diverse pharmacological importance of *Tinospora cordifolia*, *Heliyon*, Volume 5, Issue 9, 2019, e02437, ISSN 2405-8440, <https://doi.org/10.1016/j.heliyon.2019.e02437>. (<https://www.sciencedirect.com/science/article/pii/S2405844019360979>)
16. Naik GH, Priyadarsini KI, Bhagirathi RG, Mishra B, Mishra KP, Banavalikar MM, Mohan H. In vitro antioxidant studies and free radical reactions of triphala, an ayurvedic formulation, and its constituents. *Phytother Res*. 2005 Jul;19(7):582-6. doi: 10.1002/ptr.1515. PMID: 16161061.
17. Alshwaiyat NM, Ahmad A, Wan Hassan WMR, Al-Jamal HAN. Association between obesity and iron deficiency (Review). *Exp Ther Med*. 2021 Nov;22(5):1268. doi 10.3892/etm.2021.10703. Epub 2021 Sep 7. PMID: 34594405; PMCID: PMC8456489.
18. Trivedi, Niyati & B, Mazumdar & Bhatt, Jagatkumar & Hemavathi, K.G. (2004). Research Paper - Effect of Shilajit on blood glucose and lipid profile in alloxan-induced diabetic rats. *Indian Journal of Pharmacology* (ISSN: 0253-7613) Vol 36 Num 6. 36.
19. Sarup P, Bala S, Kamboj S. Pharmacology and Phytochemistry of Oleo-Gum Resin of *Commiphora wightii* (Guggulu). *Scientific (Cairo)*. 2015; 2015:138039. doi:10.1155/2015/138039. Epub 2015 Oct 26. PMID: 26587309; PMCID: PMC4637499.

Source of Support: Nil

Conflict of Interest: None Declared

How to cite this URL: Neethu Divakaran et al: A conceptual study on role of guduchi triphala kwatha with three different prakshepa churnas in management of obesity. *International Ayurvedic Medical Journal* {online} 2023 {cited July 2023} Available from: http://www.iamj.in/posts/images/upload/442_447.pdf