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A clinical study to evaluate the effect of *Lekhana Vasti* in the management of *Sthaulya*

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ABSTRACT

Sthaulya is one of the *Santarpanotta Vyadhi*. It is considered as one among the *Ashta Ninditeeya Purusha*. It is a *Rasa Nimittija* and *Medo Pradoshaja Vyadhi Avyayama, Athiasana, Athishayana* and so on are some of the *Nidanas* of *Sthaulya*. Most of the world's population live in countries where overweight and obesity kills more people than underweight. *Apatarpana Chikitsa* is main line of treatment in *Sthaulya*. When there is involvement of *Kapha Medas* and pathogenesis of *Avarana*, the condition needs *Teekshna Basti* with *Lekhana* properties. The *Varanadi Gana Kwatha* which is having similar action is selected as *Kalka* and *Kwatha Dravya* in the present study. To increase the *Teekshnata*, the *Amla Kanji* as *Avapa Dravya* has been selected. **Objectives** - Hence, the following study was taken to evaluate the effect of *Lekhana Basti* in management of *Sthaulya*. **Methodology** - 20 patients were taken in the study and were administered. *Varanadi Lekhana Basti* in *Kala Basti* format. *Matra Basti* with *Murchita Tila Taila* was given. Patients were assessed for weight BMI, biomarkers, bodily circumferences before and after treatment and after follow up.

Key words: *Lekhana Vasti, Sthaulya, Obesity, Overweight, Obese.*

INTRODUCTION

According to figures of W.H.O in 2008, more than 1.4 billion adults (i.e., age of 20 and older) were overweight. Among these, over 200 million men and nearly 300 million women were obese. The figure showed that 35% of adults (aged 20 and over) were overweight in 2008 and 11% were obese. It was more surprising that in 2011, more than 40 million children

under the age of five were overweight. And large more than one in ten was obese in the world's adult population.^[2] In addition, it was found that women more likely to be obese than men. At least 2.6 million people each year die as a result of being overweight or obese. As per W.H.O., overweight and obesity are the fifth leading risk for global deaths. *Sthaulya* is considered as *Santarpanjanya Vyadhi* (over nutritional), due to excessive accumulation of *Meda* in Body. Because of Dietary habits, sedentary life style, stress, technology etc. it has become widespread disease with so many complaints. Though modern system of medicine has their own therapeutic modalities to tackle with obesity, they are associated with many adverse effects. Taking this into consideration, the global population is enthusiastically looking towards effective natural remedies.

While describing the treatment of *Sthaulya*, Acharya Charaka emphasized on the use of *Ruksha, Ushna* and mainly *Kapha Vata Shamana* drugs and use of *Madhu*

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Udaka for the management of *Sthaulya*. *Sthaulya* is *Santarpanjanya Vyadhi* and *Atarpana* is the treatment for *Santarpanjanya Vyadhi*. Taking into consideration all the treatment modalities in Ayurveda, *Basti* seems to be the best because it is a fastest *Apatarpana*, when prepared with *Apatarpaka* drugs.^[1] In *Apatarpana* also being more specific *Lekhana Basti* is the treatment which can remove abnormally increased *Meda*. When there is involvement of *Kapha Medas* and pathogenesis of *Avarana*, the condition needs *Teekshna Basti* with *Lekhana* properties. The *Varanadi Gana Kwatha* which is having similar action is selected as *Kalka* and *Kwatha Dravya* in the present study. To increase the *Teekshnata*, the *Amla Kanji* as *Avapa Dravya* has been selected. *Basti* in the course of *Yoga Basti* is indicated in minimum *Dosha* involvement and as there is *Lekhana* and *Karshana* effect required in the patients of *Sthaulya*, it has been selected to administer in *Kala Basti* course. With this idea in backdrop, present study of *Lekhana Basti* with *Varanadi Gana Kashaya Dravya* in the course of *Kala Basti* has been planned. So, in light of above references from classics, *Lekhan Basti* was selected for the management of *Sthaulya* (obesity).

MATERIALS AND METHODS

Study type - Interventional

Design - Treatment, Efficacy, Quality of life trial

Plan of study

An open label clinical trial was conducted on the patients, where the patients were given treatment with specific duration with fortnightly follow up. Patients were given specific instructions on diet and life style modifications.

Ethical committee clearance

Freely given informed written consent had been obtained from every subject prior to research participation in accordance with the applicable law. As this is a clinical research, Institutional Ethical Committee (IEC) approval was requested for the protocol prior to initiation of research.

Then the available data was assessed using suitable statistical analysis method i.e., paired 't'- test where ever required.

Selection of patients

Patients who report to OPD and IPD of Shree Dharmasthala Manjunatheshwara Ayurveda Hospital, Udupi.

Drug source - Shree Dharmasthala Manjunatheshwara Ayurveda Pharmacy, Udupi.

Diagnostic criteria

Symptoms of *Sthaulya* like:

- *Chala - Sthana, Udara, Sphik*
- *Kshudha Adhikya*
- *Atipipasa*
- *Nidradhikya*
- *Daugandya*
- *Gourava*
- Patient with BMI > 25

Inclusion criteria

- Patients presenting with diagnostic criteria
- Patients aged 18 - 70 years
- Patient who are eligible for *Asthapana Basti*.

Exclusion criteria

- Obesity due to endocrinal abnormalities
- Patients of complication like cardiovascular and cerebrovascular disease
- Psychiatric illness
- Pregnant women

Selection of the drug/medicines

Ingredients of *Niruha Basti*

Ingredients of *Kashaya Dravya* (quantity - 250ml)

Sanskrit Name	Latin Name
<i>Varuna</i>	<i>Crateva magna</i> (Lour.) DC.
<i>Saireyaka</i>	<i>Barleria strigosa</i> Willd.
<i>Shatavari</i>	<i>Asparagus racemosus</i> Willd.
<i>Chitraka</i>	<i>Plumbago zeylanica</i> L.

Murva	<i>Chonemorpha fragrans</i> (Moon) Alston
Bilwa	<i>Aegle marmelos</i> (L.) Correa
Kitamari	<i>Aristolochia bracteolata</i> Lam.
Brihati	<i>Solanum anguivi</i> Lam.
Nidigdhika	<i>Solanum surattense</i> Burm. f.
Karanja	<i>Pongamia pinnata</i> (L.) Pierre
Putikaranja	<i>Holoptelea integrifolia</i> Planch.
Agnimantha	<i>Premna corymbosa</i> Rottler and Willd.
Haritaki	<i>Terminalia chebula</i> Retz.
Akshiva	<i>Moringa concanensis</i> Nimmo
Darbha	<i>Desmostachya bipinnata</i> (L.) Stapf

Ingredients of *Kalka* (herbal paste) (quantity - 40 gms)

Remaining ingredients

Sanskrit name	English term	Proportion
<i>Moorchita Tila Taila</i>	Sesame oil	75 ml
<i>Saindhava Lavana</i>	Rock salt	5gms
<i>Madhu</i>	Honey	150 ml

Total amount of *Niruha Basti Dravya* is 600 ml

Ingredients of *Anuvasana Basti*

- *Murchita Tila Taila* - 35ml
- *Saindhava Lavana* - 5gms

Methodology

Drug, Dosage and duration

Intervention and dosage pattern	<i>Abhyanga</i> with <i>Murchita Tila Taila</i> , <i>Nadi Swedana</i> with plain steam. <i>Basti</i> (600ml) and <i>Matra Basti</i> (35ml) on alternate days following the <i>Kala Basti</i> schedule (15days).
Duration of the therapy	7 days (<i>Kala Basti</i>) - <i>Niruha Basti</i> and <i>Anuvasana Basti</i> was given on the same day
Follow-up	After 15 days (increased accordingly)

Method of application of *Basti* therapy

Purva Karma: Patient was given local massage with Sesame oil and fomentation with plain steam after observing for symptoms of well digested previous meal.

Pradhana Karma: After clearing natural urges, patient was instructed to lie on left lateral position and after per rectal examination to eliminate rectal pathologies, luke warm *Basti* material was administered per rectum. *Anuvasana Basti* was administered with disposable glycerine syringe (35ml) and *Niruha Basti* was administered with plastic enema can (600ml).

The patient was asked to lie down in supine position gradually and buttocks were tapped slowly and gently 3-4 times. Patient was instructed to evacuate the material when urge arises. The patients were given a questionnaire after careful instructions, which was to be duly filled up after each *Basti* session. *Samyak Lakshana* was assessed and observed daily.

Pashcat Karma: Evacuation time of *Basti* material and any untoward effects were observed and noted. One *Muhurta* (48 min) and three *Yaama* (9 hours) is the maximum period of time in which the *evacuation* of *Niruha* and *Anuvasana Basti* respectively should occur. The patients were explained and instructed to adhere to *Pariharya Vishaya* (code of conduct) specifically indicated for *Basti*.

Assessment criteria

Symptoms was assessed based on the following criteria before the treatment, after the treatment and after 18 days of follow up using standard grading

Subjective parameters

- Symptoms of *Samyak Niruha Basti*
- Symptoms of *Sthaulya*
- *Medomamsa Ativrudhi*
- *Chalaspik*
- *Chalaudara*
- *Chalastana*
- *Ayathaopachaya*

- *Anutsaho*

Objective parameters

- *Sthaulya* Lakshana
- BMI: >25kg/m²
- Body weight
- Anthropometric features (measuring skin fold thickness by using slide callipers), Triceps, Biceps, Subscapular, Abdomen and thigh

Complete remission: 100% relief in chief complaints, relief in associated symptoms along with more than 20 points decrease in numerical pain scale, more than 5 points reduction in VAS and slight changes in X-ray (if needed), with normal range of serum uric acid.

Marked improvement: Above 75% relief in chief complaints, relief in associated symptoms along with more than 20 points.

Moderate improvement: Above 50% but less than 75% relief in the chief complaints, relief in associated symptoms.

Improved: More than 25% but less than 50% relief in the chief complaints with slight presence of associated symptoms.

Mild Improvement: Less than 25% relief in the chief complaints with slight improvement in associated symptoms.

Unchanged: No relief in any of the signs and symptoms

OBSERVATIONS AND RESULTS

Nidana

Ahartmaka Nidana: In this study *Ati Bhojana* was observed as *Aharatmaka Nidana* in 63.88%, *Ati Guru Bhojana* 77.77%, *Ati Madhur* 66.66%, *Ati Sheeta* 75.00%, *Ati Snigdha* 66.66%, *Dadhisevana* 38.88%, *Mamsarasa* 25.00% and *Ikshauvikara* in 19.44%. All these *Nidana* increase *Kapha* and *Meda* according to Ayurvedic principle (Ch. Su.1/44).

Vihartmaka Nidana: *Viharatmaka Nidana* observed in present study were *Diwaswapana* 66.66%, *Avyayama* 44.44%, *Bhojnotar Nidra* 63.88%, *Sukhshaiyasevana* 38.58%. Patients' energy expenditure is most valuable

factor related to obesity. Consumption of more energy and less energy expenditure leads to obesity. Lack of physical activity diminished metabolism leads to fat deposition. Excessive sleep also decreases metabolic rate. In Ayurveda *Avyayam*, *Diwaswapna* are considered as *Nidana* of *Sthaulya* because *Diwaswap* is *Abhishyandi*, which leads to formation of *Ama*. *Bhojanotar Kala* is *Kapha Pradhana* and again *Diwaswap* in this *Kala* increases *Kapha*. In this way both the factors by increasing *Kapha* and *Meda* leads to *Sthaulya*.

Manas Nidana: In this study *Harshanityatvat* was observed in maximum 66.66% patients, *Mansonivrutti* 19.44%, *Achnintanat* 36.11% which are mentioned as causative factor of the disease *sthaulya* in Ayurvedic literature.

Any Nidana: In *Any Nidana*, *Beejaswabhaba* was observed in 66.66% patients *Beejswabhava* has been mentioned as one of the causative factors of *Sthaulya* by Charaka Samhita (Ca. Su. 21/3). In 1994 a specific gene named *Ob-gene* has been identified and its secretion leptin plays pivotal role in regulation of weight.

Chief complains and associated complains

In the present study 100% patient reported *Bhararvridhi*, 80-90% had complaint of *Angachaltva* and *Atikshudha*, 85% *Kshudraswasa*, 70% patients *Daugandhya*. In the associated complains 80% patients reported *Alasya*, 95% *Gatrasada*, 95.0% *Nidradhikya*, 70.0% *Daurbalyata* and 95.0% *Snigdhangata*.

Dosha Dushti: In this study it was observed that all the patients had *Kapha Dushti* followed by 80.55% *Vata Dushti* and *Pitta Dushti*. This data shows that in pathogenesis of *Sthaulya* all three *Doshas* are involved.

Sroto Dushti: In present study all the patients had *Dushti Lakshnas* of *Medovaha* and *Rasavaha Srotas*. It was followed by 80.55% *Udakvaha* and 75% *Swedavaha Srotodushti*.

BMI: In present series 30% patient was having B.M.I in range of 30-35 kg/m² followed by 70% patients in range of 25-30 kg/m². In present study maximum

patients were having BMI between 27-32. The B.M.I of 25 to 29 kg /m² is considered as overweight and above 30 kg /m², BMI considered as Obese. As the B.M.I increases patients falls into higher grade of Obesity.

Biochemical investigation: In present study 41.66 % patient were have serum cholesterol in the range of 170-210 followed by 25.00%, in the range of 130-170, 27.77% In the range of 210-240, 2.77% patient each were observed to have serum cholesterol in the range of 100-130, and > 240. In present study 80.55 % patient were having S. Triglyceride, > 150, 16.66 % patient were having S. Triglyceride in the range of 150-200, 2.77% patient were having S.triglyceride > 200.

In this series 86.11% patient were have S.HDL < 50, 11.11 % patient were having S.HDL in the range of 50-60, 2.77% above 60. Desirable S. Cholesterol level in adult is 140-200 mg/dl., S.Triglyceride < 160 mg/dl. and HDL > 60 mg/dl. Thus, above data suggest that disturbance in lipid metabolism may have direct correlation with obesity.

Observation of Basti: Maximum 73.68% patients retained Basti for 10-15 min. While 100 % patients showed *Prasrishta Purisha* as *Samyaka Niruha Lakshna* in classics it is explained *Niruha* can be retained upto 45 min. but now a days it is not seen. Even then, with the above observation fruitful results were obtained.

1. *Kapha*: In 73.94 % was observed in at statistically highly significant level (P<0.001).
2. *Vata*: In *Vatadushti Lakshna* significant relief 65.34 % in Basti at statistically highly significant level. (P<0.001).
3. *Pitta*: In highly significant relief was observed in *Pitta Dushti Lakshna, Basti* at statistically significant level. (P<0.001).

Overall effect of Basti

In the present study, total assessment of the therapy was done based on relief in the signs and symptoms as well as objective criteria Weight, B.M.I, Skin fold thickness, Body circumference and Biochemical parameters. In this study, total 20 patients were treated, out of them 45% patients were markedly

improved, 45% patients showed moderate improvement, 10% showed minor improvement and 0% patients remain unchanged.

- 10-20% - 2 patients - Minor Improvement
- 30-40% - 4 patients - Moderate Improvement
- 60-70% - 5 patients - Moderate Improvement
- 71-80% - 7 patients - Marked Improvement
- 81-90% - 2 patients - Marked Improvement

DISCUSSION

According to the modern science, obesity precipitates the disease like Hypertension, Osteoarthritis, Coronary heart disease, Diabetes mellitus etc. Acharya Charaka included *Atisthula Purusha* under the eight verities of impediments, which are designated as *Ashta Nindita Purusha*. More than 190 PG. and Ph.D. thesis have been submitted throughout India so far, but still there is enough scope for management of *Sthaulya* with the help of Panchkarma therapy.

Regarding causative factors, it is observed that most of the exogenous type *Nidana* are mentioned by Acharya Charaka, while endogenous type *Nidana* are mentioned by Sushruta. *Beejadoshha Swabhava* is only mentioned by Acharya Charaka. In the *Sthaulya* etiological factors mainly vitiate the *Meda-Kapha*. This vitiated *Meda* obstructs the path of *Vata*, which results in to provocation of *Vata*. In the *Samprapti* two factors are of prime importance, *Tikshna Jatharagni* and *Medodhatvagnimandya*.

Irrationality between two levels of *Agni* makes the disease *Krichhra Shadhya*, but *Panchkarma* therapy can give better solution for this problem. *Lekhana Basti* was selected for the management of *Sthaulya*. It has been already discussed in concerned chapter why *Lekhana Basti* was selected for this study. 20 patients were treated under single group - *Lekhana Basti* (20). The different aspects of this study in detail are being presented here. *Basti* provided better result in improvement of sign and symptoms, *Dosha Dushti Lakshna, Sroto Dushti Lakshna* and in objective parameters i.e., Weight, B.M.I, Circumference and Skinfold thickness. Moreover, it showed better result

in overall effect. Probable reasons for better result of the *Lekhana Basti*. *Basti* not only eliminates *Dosha* from the body but through the colon (*Pakvasaya*) drug is absorbed and reaches up to the micro channels of the body, which performs the action of *Samprapti Vighatana* at cellular level. It is also supported by our classics. (Su. Chi. 35: 26)

CONCLUSION

Sthaulya is a *Dushya* dominant *Vyadhi*. There is an involvement of all the three *Doshas* in *Sthaulya* but the vitiation of *Kapha-Vata* and *Meda* of prime importance. Etiological factor mainly vitiates *Kapha-Meda*. This vitiated *Meda* obstructs the path of *Vata* and causes its *Avarana* which results in provocation of *Vata*. Thus, remaining in the *Kostha Vata* causes *Atikshudha*, which increases gravity of the disease and makes the *Sthaulya Kritichsadhaya*. Due to obstruction by *Meda Vyana Vayu* could not transport nutrient to other *Dhatu* so *Medadhatu* is increased and *Uttardhatu* decreased. So, treatment modality should be planned considering vitiated *Meda*, *Kapha* and *Vata*. *Lekhana Basti* is amongst them. Sedentary life, lack of exercise, faulty food habits, and urbanization precipitate the disease. Genetic predisposition, *Kapha* predominant *Prakriti* increases the prevalence of *Sthaulya*. Females are more prone to obesity due to feminine factor like menopause and aggravating

factors like delivery, I.U.C.D., oral contraceptive pills, miscarriage. *Basti* provided better result in almost all the parameters because it eliminates *Doshas* from the body and simultaneously absorbed drug performs their action of *Samprapti Vighatana* at cellular level.

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