

## **Clinical Approach to Childhood Obesity with Lekhan Basti and Ayurvedic Regimen.**

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### **ABSTRACT**

**Background-** Childhood obesity is a condition where child has accumulated so much body fat that it might have a negative effect on their health. The factors responsible for obesity and over weight in children are excessive eating and less physical activity. According to this basic treatment principle ayurveda recommends a multidimensional approach in the management of obesity, So that the vicious cycle which result in obesity must be broken. **Aim-** To study the effects of Lekhan basti and Ayurvedic regimen in the management of childhood obesity. **Material and Methods-** Open label clinical trial in obese children diagnosed by applying BMI index. Shaman and Shodhan chikitsa was given to manage the obesity in children. Treatment aimed to reduce the weight, to avoid complications, to improve the quality of life, safe and long term useful drugs. **Results-** out of 12 cases 11 pts were obese and successfully treated by giving both shaman and shodhan chikitsa. Ayurvedic regime and Lekhan basti chikitsa shown significant reduce in BMI in children. **Conclusions-** Obesity in children is different & not easy as adults. This clinical trial concluded as obesity in children could be managed by- Balance Agni. Detoxification of Ama. Utilization of different herbs/ remedies and physical Exercise.

**Keywords-** Childhood Obesity, Lifestyle Diseases, Lekhan basti, Shodhan Chikitsa, Shaman chikitsa, Obesity epidemic.

### **Introduction:**

Kaumarbhritya i. e. section of Ayurveda dealing with child life with special emphasis on nutrition of children<sup>[1]</sup>. According to Kashyapa, paediatrics is the most important division of medicine, as the other divisions play their role only after the child matures into adult<sup>[2]</sup>. The goal of the childhood is to see that they develop into a healthy, happy and useful citizen. Hence, a paediatrician should know the characteristics of healthy life and useful life. The pediatric text would mention all about what is beneficial or harmful to a child. The aim of Ayurveda is to give guidelines for the maintenance and promotion of health as well as for the prevention and

treatment of diseases. It describes all the methods and means for maintaining constantly a balanced state of Tridosha i.e. the maintenance of the milieu interior of the body.

Obesity is a medical condition involving an abnormal or excessive fat accumulation that presents a negative effect on health. Obesity is leading preventable cause of death worldwide, with increasing rate in children. In 2015, the estimate shows that 600 million adults and 100 million children were obese in 195 countries<sup>[3]</sup>.

In Ayurveda obesity is regarded as Sthaulya<sup>[4]</sup> and Medoroga<sup>[5]</sup>; these both terms are used for obesity. According to Ayurvedic classic there is no medicine for Sthaulya<sup>[6]</sup> (obesity); along with this there is some Panchakarma procedures mentioned in text are helpful to treat obesity. Lekhana basti is one of the panchakarma procedure given to manage obesity in children. To obtain the answer of following questions, this clinical trial was carried out.

1. Obesity or Malnutrition which is the main problem in India?
2. Obesity and overweight same or different?
3. Is Increase in weight is obesity?
4. Do obese children grow into obese adult? Do causative factors & diagnostic parameters in children differ from adult?
5. Medorog and sthauilya, same or different?
6. “नहीस्थौलस्यभेषजम्” Treating obesity-is it a futile exercise?

## Material and Methods

**Study design-** Open Randomized Clinical Trial involved total 11 paediatric age group children. The present clinical trial was done at government institute of Ayurveda, pediatric department in 2018.

**Sample source** – pediatric patients of age group 6 years to 16 years, visited at OPD of government Ayurvedic institute, Maharashtra had complaint of overweight were assessed with the help of following assessment criteria and enrolled for clinical trial. Parents were counseled well about health condition of child and treatment planned before the trial.

**Assessment** - Total 11 pediatric patients were included in this trial and written consent was taken before enrolment for clinical trial. Patient were diagnosed in the category of Overweight and Obese with the help of following assessment parameters-

### 1. Anthropometric Measurements

- a) **IBW** (Ideal Body Weight)<sup>[7]</sup>– It is calculated as -

$$\text{IBW (Kg)} = 22.5 \times \text{height (m)}^2$$

**Table -1 IBW**

Body weight	Category
< 18%	Underweight
>10%	Overweight
> 20%	Obese

b) **BMI** – (Body Mass Index)<sup>[8]</sup>

$$\text{Height (m}^2\text{)} \quad \frac{\text{Weight (Kg)}}{\text{Height (m}^2\text{)}}$$

**Table -2 BMI**

<b>Adult</b>	<b>Children</b>
BMI > 25 is overweight	BMI >85 centile for age is overweight
BMI > 30 is obese	BMI > 95 centile is obese

c) **Weight for height** > 120 % is obese

d) **Skin fold thickness** = measured over subscapular, triceps & biceps region  
> 85% - 85<sup>th</sup> percentile – abnormal.

With the help of this patients were diagnosed in the following category

1. Obese.
2. Overweight.
3. Normal.

### **Approach towards obesity in Paediatrics**

#### **What to ask?-**

Family history of obesity

Dietary intake- quality and quantity of food intake with frequency.

Outdoor activities- time spend in activity and frequency.

Television viewing / computer games- time spend.

History of CNS infection

History of head injury, Neurosurgery

History of headache, vomiting

The Developmental history of the childup to age. Children are different than adult so this history should be taken in every child complaining for overweight in paediatric OPD.

#### **What to look for?**

1. Anthropometric Measurements
2. Fat distribution - Generalized / truncal
3. Accumulation of fat in neck & trunk – Excess cortisol  
Buffalo hump – Cushing syndrome

Reduced rate of linear growth in children with obesity- GH def., Hypothyroidism, cortisol excess, genetic syndrome like Prader-willi syndrome.

3. Facies- course facies- hypothyroidis, Moon facies – Cushing syndrome

4. Congenital malformations – Polydactyl – Laurence- moon-Biedl syndrome & Alstrom syndrome. Hands & feet are short – Prader-Willi syndrome.

5. Secondary sex characters – Growth Rate & pubertal development delayed in hypothyroidism & cortisol excess.

6. Systemic examinations- Hepatosplenomegaly – Glycogenosis, Generalised hypotonia – Prader-willi syndrome.

### **Investigation is to be done-**

1. Blood glucose fasting & pp
2. Lipid profile
3. Karyotyping
4. Adrenal function
5. GH Assay
6. Thyroid hormones
7. Sr. ca, p & parathormone level
8. MRI of brain.

### **Classical Review of Obesity / Sthaulya:**

When excessive as well as abnormal growth of medodhatu along with mamsa dhatu is found in a person which result into pendulous appearance of buttocks, abdomen and breast called as

sthaulya.<sup>[9]</sup>

### **Obesity-Medoroga-**

In Ayurveda obesity is regards as Medoroga - a disorder of Meda Dhatu – Adipose tissue and fat metabolism.

“Sthaulya”- ‘Santarpan janya vikar’ – a over nutritional disorder.

- Sthaulya - obese or looking bulky. This is anatomical description of the disease.
- Medoroga<sup>[10]</sup> This is the physiological part of disturbance which takes place on the backdrop of sthaulya means anatomical presentation of Medoroga.

**AYURVEDIC MANNAGEMENT OF STHAULYA**

Charaka samhita	Susruta samhita	Vagbhata samhita
Guru apatarpan aahar <sup>[11]</sup>	Virukshana chedana	Langhana
Vaataghna annapaan <sup>[12]</sup>	Lekhan basti <sup>[14]</sup>	Guru apatarpan
Langhan rukshan <sup>[13]</sup>		Medo anil shlesmaa haranaam

Ayurvedic medicines	Rasakalpa	Basti
Musta (cyperus rotundus) <sup>[15]</sup>	Rasbhasma yoga	Lekhan basti
Guggul (commiphora mukul) <sup>[16]</sup>	Trimurti rasa <sup>[16]</sup>	Ushakadi basti
Haridra (curcuma longa) <sup>[17]</sup>	Vadvagni rasa <sup>[17]</sup>	

**Treatment given:**

Treatment aimed to reduce the weight, to avoid complications, to improve the quality of life, safe and long term useful drugs.

Internal medication	Panchakarma
1. Tablet Trifala guggula. 2 BID with water for 7 days.	a. <b>Udvartana</b> <sup>[18]</sup> – Trifala powder + Haridra powder + Suntha powder. For 1 month b. <b>Lekhanabasti</b> - Yogabasti karma <sup>(8)</sup> , Madhu – 15ml, Saindhava -2gms, Kalka – trifala churna 20gms, Gomutra – 100ml, Katu taila 20ml, 3 cycles. c. <b>Vyayam</b> (exercise) d. Vamana.
2. Tablet Arogyavardhini vati. 1 BID with water for 15 days.	

**Treatment principals and pharmacotherapy of drug used-**

According to this basic treatment principle ayurveda recommends a Multidimensional approach in the management of obesity, So that the vicious cycle which result in obesity must be broken

- 1.To raise the metabolic power or digestive fire in the adipose tissue ,herbs like Guggule, Shilajit,and **Triphala** are used.
2. Ama production is treated by toxin- burning herbs like Guggulu,Shilajita and **haridra**.
3. Aggravation of Vata is treated by medicated enemas of the cleaningtype (**Niruha basti**)
4. Channel blockage is alleviated by fat-reducing(**Lekhans**)herbs which have a scarping action to open the channels.
5. Exercise with gradual increase according to the strength of the patient is advised.No strong exertion or straining is recommended by Ayurveda . Exercise are recommended that are simple to perform.

Life style factors related primarily to diet and exercise.

Sweet taste is restricted in the diet as its earth and water elements increase heaviness.

### Results:

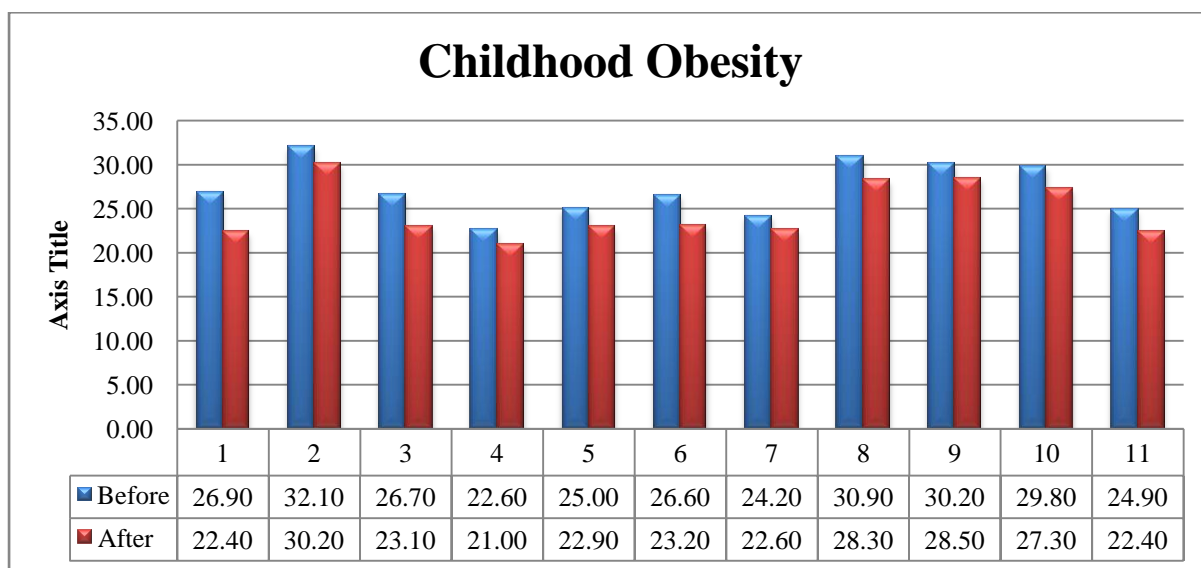
Total 12 patients have been enrolled for trial and out of them one patient was withdrawal by study; as he has developed colitis after 15 days of starting the therapy. Results are plotted after and before the treatment by assessing Body Mass Index (BMI). Panchakarma procedure like Lekhana basti and Udavartana along with Ayurvedic medicines has significant results to reduce the BMI in children.Data was analysed after successful completion of treatment course by patients. The children assessed as-

**Normal** - advised normal diet plan.

**Overweight**- diet plan and exercise (physical activity)

**Obese**—medications + panchakarma procedures + exercise.

Data is graphically presented as follow



## Discussion:

In early 90's obesity was either hereditary or related to some other diseases. But now a days obesity has become a common problem in children. Main reason for this is sedentary life style & consumption of excess junk food. Genetic/hereditary disorder is one of the cause for obesity. Drug alone can't be treatment for obese children. Deprivation of children from outdoor activities is one of the increasing trends in more & more electronic gadgets in home. While composing a diet for children, natural principles of nature diets (unbaked, fresh vegetables, fruits) should be part of daily diet. Unlike other diseases obesity is better to be prevented & thus same drug may not be useful for all the individuals, hence we feel to recommend a drug have for obesity. Related studies were reported by Kinyoki et. al. (19,20). Related studies by Nisargandha et. al. and Sagar et. al. were reviewed (21,22). Umate et. al. reported on conceptual understanding of Ahar and Yoga in the management of obesity (23). Acharya reported on Metabolic Healthy Obesity (24). Mittal et. al. reported care seeking behaviour of families for their sick infants (25). Studies by Gaidhane et. al. (26) and Khanam et. al. (27) addressed related issues among different groups.

## Conclusions:

This study has been concluded as- childhood obesity could be managed by- Balance Agni, Detoxification of Ama, Improving dietary habits, Conduction of appropriate daily routines, and Exercise. Obesity runs in family because no one runs in the family. To define standard management protocols for childhood obesity there is need of large sample clinical trials.

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