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### RESEARCH ARTICLE

#### SINGLE CASE STUDY ON ADOLESCENT OBESITY- AN AYURVEDIC MANAGEMENT

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#### Abstract

Now a day's peoples are not conscious about their health. In today's era, obesity is growing very fast due to Western Lifestyle has influenced young adults resulting in obesity. According to W.H.O obesity is the fifth leading risk for global deaths. Many diseases arise due to obesity like Diabetes, Hypertension, Heart disease, etc. In Ayurveda obesity can be correlated with Sthaulya or Medoroga. A 13-year-old male child was brought to Dr. D. Y. Patil Ayurveda hospital Balrog OPD with complaints of weight gain, increased perspiration, lethargy and was given ayurvedic management and was found to have reduction in weight, increase in energy levels, decrease in perspiration.

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#### Introduction:-

According to W. H.O., overweight and obesity are the fifth leading risk for global deaths. The worldwide prevalence of obesity nearly tripled from 1975 to 2016.<sup>1</sup> About 13% of the world's adult population was obese.<sup>2</sup> Overweight and obesity are linked to more death worldwide than overweight.<sup>3</sup> Acharya Charaka has described eight types of censurable persons of which Atikrisha (very emaciated) and Atisthula (very corpulent) are more significant. Atisthula or an obese person needs more attention because it is considered as Krichchhrasadhya – as a difficult to treat disease or person and has more complications than a very emaciated person.<sup>4</sup>

Childhood obesity has reached epidemic levels in developed as well as in developing countries. Overweight and obesity in childhood are known to have significant impact on both physical and psychological health. Overweight and obese children are likely to stay obese into adulthood and more likely to develop non-communicable diseases like diabetes and cardiovascular diseases at a younger age.<sup>5</sup> The world is undergoing a rapid epidemiological and nutritional transition characterized by persistent nutritional deficiencies, as evidenced by the prevalence of stunting, anemia, and iron and zinc deficiencies. Concomitantly, there is a progressive rise in the prevalence of obesity, diabetes and other nutrition related chronic diseases (NRCDS) like obesity, diabetes, cardiovascular disease, and some forms of cancer. It is emerging convincingly that the genesis of Type 2 Diabetes and Coronary Heart Disease begins in childhood, with childhood obesity serving as an important factor. There has been a phenomenal rise in proportions of children having obesity in the last 4 decades, especially in the developed world. Childhood obesity is associated with a higher chance of obesity, premature death and disability in adulthood. But in addition to increased future risks, obese children experience breathing difficulties, increased risk of fractures, hypertension, early markers of cardiovascular disease, insulin resistance and psychological effects.<sup>6</sup> Studies emerging from different parts of

India within last decade are also indicative of similar trend . Childhood obesity is one of the most serious public health challenges of the 21<sup>st</sup> century.

## Materials & Methods:-

**Table 1:-**

Medicine	Strength	Time	Duration
Tab Arogyavardhinivati	400 mg	2 times a day	30 days
Tab Shankh vati		2 times a day	7 days
Tab medohar guggul	380 mg	2 times a day	60 days
Tab krumikutharras		2 times a day	30 days
Udwartana with triphalachurna		All over body 30 min daily	15 days
Lekhan basti			8 days

## Case Report

A 13-year male child was brought to balrog OPD by grandfather on 10/05/2023 with OPD no- 1006858 With complaints of weight gain , generalized weakness , increased perspiration since two and half years .No history of Any surgical or medical illness. No any Known Family history of Sthaulya or obesity and systemic disease . Patient having history of gradual weight gain since last two and half years, he had tried to loose weight with many other therapies but not reduced weight. The patient is vegetarian & he frequently eats junk food like as pizza burger 2-3 times a week .Patient was neither playing or going for any outdoor games .Patient had the habit of screening till late night and therefore poor sleep quality . Patient was vata Pradhan kapha Prakriti .On first visit patient was afebrile, with pulse rate -86/min, SPO2 -98 % on RA , BP - 110/70 mm of Hg, Air Entry bilaterally equal & normal . There was no abnormality detected in cardiovascular systemic examination .

According to Ayurveda following symptoms of medoroga were observed -Javoparodha (Lack of enthusiasm) ,Daurbalya (General debility) ,Daugandhya (Foul smelling of body), Swedabadha (Distressful sweating ) ,Kshudhatimatra (Excessive hunger) ,Pipasatiyoya (Excessive thirst )

His Height was 156 cm and weight was 74 kg therefore BMI is =30.0 m<sup>2</sup> . According to IAP growth charts he was in 97 percentile

Name of Strotas	Dushtilakshana
Raasvaha	Exertional dyspnea (Ayasenaswaskasthata) heaviness in body (Gurugatrata) continuous feeling of laziness (Utsahahani)
Mansvaha	Enlargement of Spik and Udara (Increased belly fat and buttocks region fat )
Medovaha	Increased body weight (Gurugatrata) Excessive perspiration (Swedabadha) Polydipsia (Atitrushna) Polyphagia (Atikshuda)

In this case rasavaha , mamsavaha , medovahastrotodushti was observed mentioned in (Table 2)

## Diet was advised as below (Table 3)

Can have	Don't eat
<ul style="list-style-type: none"> <li>• Home cooked fresh food</li> <li>• Shaak varg (green leafy vegetables)</li> <li>• Phala varga (all seasonable fruits)</li> <li>• Shimbi – mudga , masoor</li> <li>• Shali – puranshali</li> <li>• Shuk dhanya- yava, kulttha</li> <li>• tail – musterd oil</li> <li>• Dugdhavarga – takra</li> </ul>	<ul style="list-style-type: none"> <li>• Refined flour</li> <li>• Bakery products</li> <li>• Fermented food</li> <li>• Cheese, curd, paneer</li> <li>• Fast food</li> <li>• Ikshu</li> <li>• Fruit juices</li> </ul>

Plan of treatment (Table 4)

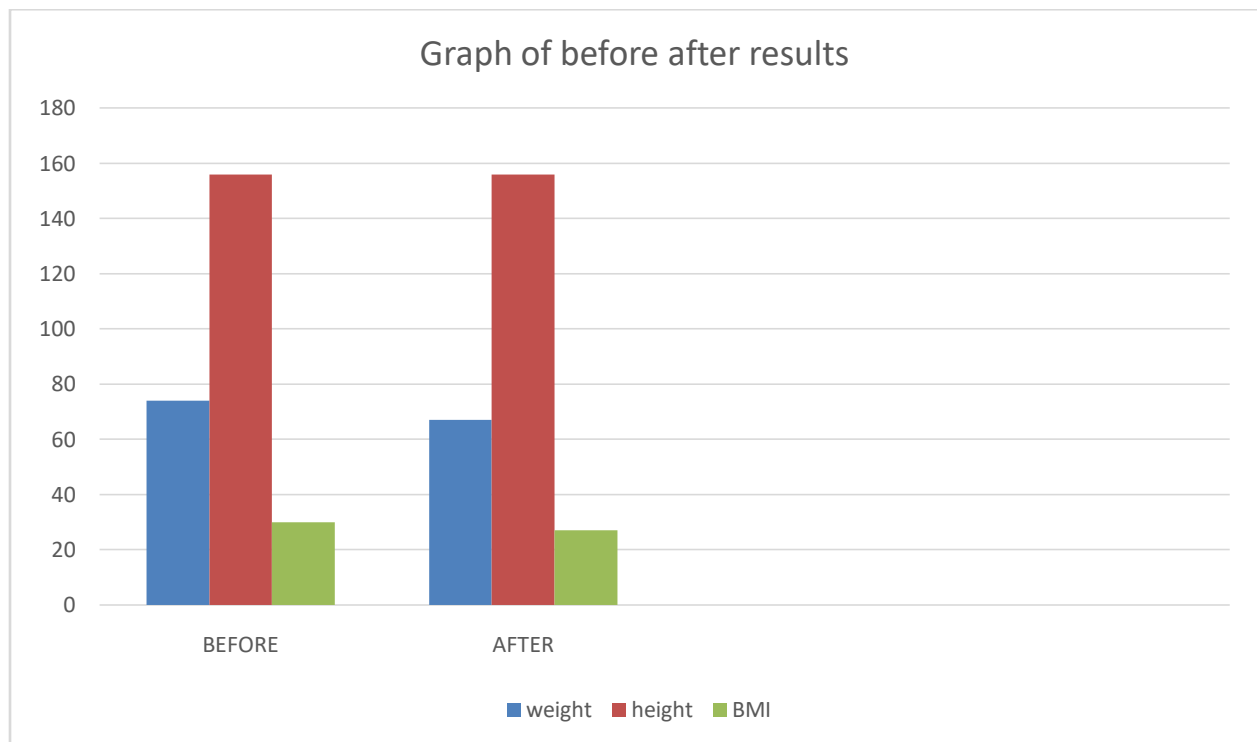
Sr no	Duration	Treatment	Drugs
1	(10/05/2023-15/05/2023) 1 to 6 days	Deepan	Shankh vati Tab krumikutharras 1—0—1 (till 1 month from 10/05/2023-10/06/2023) After 7 days Tab arogyavardhinivati 1—1—1 (10/05/2023-10/06/2023)
2	(16/05/2023-22/05/2023) Day 6 to day 12	Lekhan basti Udwartana Sarwangswedan —nadiswed	Lekhan basticontaints – triphalakwath, gomutra, madhu, yavakshara, for 8 days Udwartana- triphalachurna Continue with oral medication (what)
3	(22/05/2023-10/06/2023) Day 12 to day 30	Oral medicine	Tab medohar guggul 1—0—1 Tab aarogyavardhinivati 1—1—1

**Observations and Results:-**

Anthropocentric changes before and after treatment

Table 5:-

Observations	Before treatment (10/05/2023)	After treatment (10/06/2023)
Weight	74 KG	67 KG
Height	156 CM	156 CM
BMI	30.0 M <sup>2</sup>	27.91M <sup>2</sup>



**Change in subjective criteria before and after treatment****Table 6:-**

Symptoms	Day 1 (10/05/2023)	Day 2 (17/05/2023)	Day 3 (27/05/2023)	Day 4 (3/06/2023)	Day 5 (10/06/2023)
Utsahhani (Always feel lethargic )	+++	+++	++	++	+
Swedadhikya (Excessive perspiration)	++++	+++	+++	++	+
Daugandhya (Foul smell of body)	++	++	+	+	+
Gurugatrata (Heaviness in body)	++++	++	+	+	+

**Nidan panchak-**

As far as etiological factors are concerned According to Ayurveda following are observed mentioned in (Table 7)

Nidana · Ahara	Madhur rasa, Snigdhaahar- like milk and milk products and Pistanna- like rice and bakery products (Guru, Snigdha, Sheeta and Abhishyandi)
Vihara	Avyayam, Diwaswap, Achinta
Poorvaroopa	Avyakta
Roopa	Weight gain, Excessive sweating, dyspnea on exertion, heaviness in body, continuous feeling of laziness, polydipsia, polyphagia, enlargement of Spik and Udara.
Upashaya	Apatarpan chikitsa
Anupashaya	Santarpanajanyaahara

As far as pathophysiology is concerned it was as below according to Ayurveda

Nidana Sevana (Madhura Rasa, Snigdha Ahara, Pistannasevana, Diwaswap, Avyayama, Achinta)  
→Kaphadoshavridhhi→Medodhatwagnimandya→Medo dhatu vridhhi→Sthaulyata

**Samprapti Ghatak Table (Table 8)**

Dosha	Kapha and Vata
Vikalpasamprapti	Guru, Snigdha, Sheeta and Abhishyandigunas of Kaphadosha
Dushya	meda., mamsa, rasa
Srotasa	Medovaha, Mansavaha, Rasavaha
Srotodustiprakara	Sanga
Rogamarga	Bahya
Vyaktasthana	Sarvashareera

**Discussion:-**

Obesity in adolescent of major concern as it may lead to Diabetes and Cardiovascular diseases in adulthood. Obesity may lead to depression in adolescent<sup>7</sup>. Treatment incorporates a respectful, stigma-free and family-based approach involving multiple components, and addresses dietary, physical activity, sedentary and sleep behavior. In adolescents in particular, adjunctive therapies can be valuable, such as more intensive dietary therapies, pharmacotherapy and bariatric surgery<sup>8</sup>.

Currently orlistat and metformin are used in childhood obesity <sup>9</sup>.

But it has been observed that it has been associated with gastrointestinal undesired effects such as oily stools , diarrhea, abdominal pain , fecal spotting ,and also Depression, malaise , lassitude, headache, forgetfulness and enteric hyperoxaluria, acute kidney injury , secondary to acute oxalate nephropathy, rapidly progressive renal failure and it also affects bioavailability of certain drugs such as thyroxin and , vit A, vit D, vit E ,Vit K .<sup>10</sup>

One more drug which is used in obesity Sibutramine is inhibitor of serotonin and marrow epinephrine reuptake but now it has been withdrawn due to cardiovascular side effects <sup>11</sup>.

According to Ayurveda , Principle line of treatment is as follow

वातघ्नान्यन्नपानानिश्लेष्ममेदोहराणिच।  
रुक्षोष्णाबस्तयस्तीक्ष्णारूक्षाण्युद्वर्तनानिच॥२१॥  
गुडूचीभद्रमुस्तानांप्रयोगस्तैफलस्तथा।  
तक्रारिष्टप्रयोगश्चप्रयोगोमाक्षिकस्यच॥२२॥<sup>12</sup>

Patient was advised to restrict diet as mentioned in (table 3)

Can have	Don't eat
<ul style="list-style-type: none"> <li>• Home cooked fresh food</li> <li>• Shaak varg (green leafy vegetables)</li> <li>• Phala varga (all seasonable fruits)</li> <li>• Shimbi – mudga , masoor</li> <li>• Shali – puranshali</li> <li>• Shuk dhanya- yava, kulttha</li> <li>• tail – musterd oil</li> <li>• Dugdhavarga – takra</li> </ul>	<ul style="list-style-type: none"> <li>• Refined flour</li> <li>• Bakery products</li> <li>• Fermented food</li> <li>• Cheese, curd, paneer</li> <li>• Fast food</li> <li>• Ikshu</li> <li>• Fruit juices</li> </ul>

Patient was given deepanpachan chikitsa with shankhvati followed by krimikuthar Rasa

Krimikuthar Rasa Contains-Camphor Cinnamomum camphora has essential oils which have antimicrobial property and antioxidant activity . According to ayurved it has been mentioned to have chedan and lekhan property <sup>13</sup>.

Krumikuthar contains vidanga which is also medonashak. Embliaribes contains 2.5 stable oil colour agent, tannin, Embelin, resin, kshar. Vidanga is useful in diseases due to blood impurities and in disease caused by vitiation of Meda. It purifies blood by optimizing its Agni and is very useful in disorders of rasa Dhatu and oedema.<sup>14</sup>

Another medicine was advised was Arogyavardhini which has major ingredient of Picrorhizakurroa - Picrorhizakurroa had been tested on male rats where reversal of fatty changes in liver is studied<sup>15</sup>.Arogyavardhini Vati may be beneficial in reducing the inflammation of the liver, kidneys, bladder, spleen, uterus, and intestine.Arogyavardhini has lekhana and chedana properties that helped to reduce vitiated meda in children.

MedoharGuggulu is a unique preparation that works on metabolism and naturally burns fats.

Dr.JainSanap had mentioned as Medohar guggul has shown significant results in weight loss both subjective and objective criteria.<sup>16</sup>

Triphala activates biosynthesis of phenylalanine , tyrosin and tryptophan which involve regulation of energy metabolism; therefore, it is observed to reduce in BMI, weigh in obese adolescents.<sup>17</sup>

Lekhan basti- Basti is a procedure where medicated oils and herbal decoction are administered through rectal route .We advised lekhanabasti which contains Triphala, gomutra,saindhav , madhu, yavakshar,til tail .Praksepadravya ( kasisabhasma, hingu, saindhav were selected from ushakadigana except shilajit because of its scanty availability and less purity. Alsututtha was not included because of its toxic quality), 10 gm Kalka dravya (yavani, madanphala,bilva,vacha,shatpushpa, pippali).<sup>18</sup>

Udwardan-In present study, Ruksha Udwardana with TriphalaChurna was carried out. It consists of HaritakiChurna - 1 part, Bibhitakichurna - 1 part, and AmalakiChurna - 1 part, its ingredients mainly have Katu, Tikta, Kashaya Rasa and Dravya having Laghu, Tikshna, Ruksha Guna and Ushna Virya. The drug possessing Katu, Tikta, Kashaya Rasa acts as Kaphahara, Krumighna, Kandughna. Ushna Virya proprocessingSrotoshudhhi, Ruksh Guna predominance of Agni and Vayu Mahabhuta pacifies Snighdha and Pichila Guna of Kapha and subsequently decreasesKledatwa. Hence Udwardana using Triphalalchurna is most effective in Sthaulya. Based on the observation of present study, it can be concluded that Udwardana can be considered as an effective supportive therapy in management of Sthaulya.<sup>19</sup>

As per Acharya Vagbhata, UdwardananormalisesVikruta Kapha and liquefies the Meda dhatu. It provides firmness to body, smoothness to skin and increases the complexion of the skin.<sup>20</sup>

### Conclusion:-

Sthaulya can be successfully managed with Ayurvedic therapeutics along with diet and lifestyle changes . In present case study, combined use of Nidanaparivarjana, Rukshana and Basti chikitsa as per Dosha Avastha gave remarkable relief to the patient with significant weight reduction. To prevent relapse, patient was advised to follow Pathyakar Ahara and Vihara .

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