

## A CLINICAL STUDY TO EVALUATE THE EFFECT OF *LEKHAN BASTI*, *UDVARTANA* AND *NAVAK GUGGULU* IN THE MANAGEMENT OF OBESITY VIS-À-VIS *STHAULYA*

Parul Sharma<sup>1</sup>, Ved Bhushan Sharma<sup>2</sup>

<sup>1</sup>Medical officer, Deptt. of Panchkarma, <sup>2</sup> Medical officer, Deptt. of Agad Tantra,

Rishikul govt. Ayurvedic college, Haridwar, Uttarkhand, India

### ABSTRACT

Obesity is a social, psychological and somatic disorder leading to miserable life of the victim. Here in this study the obesity had been treated by *Ayurvedic* means. For it, the *lekhan basti*, the dry *udvartana* and *navak guggulu* were administered to the obese patients by distributing them into 3 groups, and all the patients respond well to the therapy or treatment given. The best results were shown by *lekhan basti* group followed by *navak guggulu* and then by *udvartana* / dry powder massage.

**Key Words**: Obesity, *Navak guggulu*, *Lekhan basti*, *Udvartana*

### INTRODUCTION

Since time immemorial obesity has been main hall-mark as a disease, which is also responsible for diseases like Diabetes mellitus, Hypertension, and cardiovascular disease. As a total lifestyle has been changed due to advancement of scientific invention and pouring of so much luxurious way of living, this all has contributed much to the obesity. It became a problem in U.S.A and becoming problem in India too, leading to other diseases. In modern medical science various therapies for obesity like drugs and surgery etc. are described but they are not popular as are costly, complicated and also having side effects. *Ayurveda* has given much more consideration for the treatment of obesity. In present study the disease obesity has been treated and prevented by *Ayurvedic* measurements like *navak guggulu*, *lekhan basti* and dry powder massage (*udvartana*). Many studies have so far been carried out on *navak guggulu* and

*lekhan basti*.

Srivastava et al<sup>1</sup> worked on management of obesity by *Navak guggulu* and reported highly significant results on

reduction of weight, B.M.I. and body circumferences. Savjani Rekha et al<sup>2</sup> studied on *lekhan basti* and proved its significant result in obesity. Khunt Tejal et al<sup>3</sup> compared the efficacy of *Virechana* and *lekhan basti* in the management of obesity and the results were proved better in *lekhan basti* group in all respects. In this present study besides *navak guggulu* and *lekhan basti*, dry powder massage i.e. *Udvartana* also has been undertaken to evaluate the efficacies of above three. For it total 45 patients have been studied, which were randomly distributed into three groups viz. *Navak guggulu* (NG) group, *Lekhan basti* (LB) group, & Dry *udvartana* (DU) group. There are 20 patients in NG group, 13 in LB group and 12 in DU group. The clinical parameters, objective parameters and biochemical investigations are measured before and after the treatment at regular follow-up.

### MATERIAL & METHOD –

**Preparation of medicine** – The *Navak guggulu*, powder for *Udvartana* (*Shailayadi churna*, B.P.) etc. were prepared in

pharmacy of Rishikul state Ayurvedic college, Haridwar. The **reference of Navak guggulu**<sup>4</sup> is taken from *Cakradutta* 36/18. For its preparation the raw materials were collected from Prem nagar asharam pharmacy, haridwar. The equal amount of *amalaki, haritaki, vibhitak, mustak, vidanga, chitrak-mula, shunthi, marich* and *pippali* were taken and grinded well in to a fine powder. Pure *guggulu* is taken into amount equal to total grinded powder, and allowed to heat. After cooling of fully melted *guggulu* the whole powders has been mixed, allowed to kuttan. Finally the vaties (tablets) were prepared each of 250 gm. The **reference of Shailayadi powder**<sup>5</sup> for Udvartana has been taken from *BhavPrakash(madhyam khand* 39/28). For the preparation of it, the raw material is taken from Prem nagar asharam, haridwar. *Shailay, Kusth, Agaru, Devdaru, Renuka seed, Mustak, Saral kashth, Lata kasturi, Tulsi manjari, Lavang, Amra patra, Jamun patra, Bijora nimbu patra, Bilva patra* etc were taken in to equal amount and grinded well. It is again and again filtered to turn into finest powder as to be used for Udvartana. Preparation of **Lekhan basti**<sup>6</sup> was as per text Sushruta, where *madhu, saindhava, castor oil, ushakadi kalka, triphala kwath* and cow's urine were taken to form *lekhan basti*. *Ushakadi kalka* contained equal amount of *ushak, saindhav, shilajit, kasis, tuttha, and hingu*. For its preparation:-

*Madhu* -75gm, *Saindhav*- 5gm, *Erand tail* - 75ml, *Ushakadi kalka* - 10gm, *Triphala kwath* and *Gomutra*- 200 and 100 ml respectively. For *Anuvasana basti* castor oil has been used in dose of 50ml.

#### DRUG, DOSAGE & DURATION

**Navak guggulu** - 500 mg twice a day with lukewarm water after chewing before meal for the duration of 30 days.

**Lekhan basti** - According to *kala-basti karma*, there are 6 *niruha basti* with 9 *anuvasna basti*, each on alternate day and

remaining 3 *anuvasana basti* at last. The total duration of therapy is 15 day.

**Udvartan group** - The patients are massaged by dry *udvartan* therapy by *shailayadi churna* given for 45 minutes each day till 21 days, empty stomach.

**STUDY DESIGN**- For the present study, the patients are selected randomly from O.P.D. / I.P.D. Rishikul state ayurvedic college, haridwar, and divided into three groups—: **NG GROUP**(Group of *navak guggulu*) - In this group total 23 patients are registered, in which 20 has completed the full course, and 3 patients do not follow the therapy. The *navak guggulu* is given 500 mg B.D. for 30 days with lukewarm water before meal. **LB GROUP**(Group of *lekhan basti*) - In this group total 20 patients are registered in which 13 patients have taken full course and 7 patients do not follow the same. The *lekhan basti* is given in *Kal basti karma*. **DU GROUP**(Group of *dry udvartana*) - In this group 17 patients are registered, in which 12 patients completed the full course, and 5 patients do not follow the full course. The dry *udvartana* is done by *shailayadi churna* for 21 days.

#### CRITERIA OF ASSESSMENT

The patients are assessed by following two methods:-

1. Objective criteria
2. Subjective criteria

**OBJECTIVE CRITERIA**- It follows the measurement of height, weight, B.M.I., circumferences of waist, hip and mid arm. The waist circumference is measured at the level of umbilicus, that of hip at the level of highest point of distension of hip, and of mid arm, from mid of the shoulder to elbow joint. It also includes the biochemical investigations as S.Cholesterol, S.TGS, HDL, LDL, VLDL.

**SUBJECTIVE CRITERIA**-The symptoms described in *Ayurveda* for the disease obesity were taken into account for the subjective criteria. For statistical analysis, multidimensional scoring system was

adopted. The chief subjective criteria's were *Ati nidra, Daurgandhya, Ati kshuda, Ati pipasa, Swedadhikya, Anga-chalatva, kshudra swasa* and *Alasya*.

### CLASSIFICATION OF RESULTS

- |                        |               |
|------------------------|---------------|
| 1. Cured               | 100%          |
| relief.                |               |
| 2. Markedly improved   | 99% to 75%    |
| relief.                |               |
| 3. Moderately improved | 74% to 50%    |
| relief.                |               |
| 4. Improved            | 49% to 25%    |
| relief.                |               |
| 5. Unchange / Stable   | Less than 25% |
| relief.                |               |

### OBSERVATIONS & RESULTS

Out of the 45 patients maximum patients were female(77.78%), maximum patients were under age group between 45-55 yrs. Maximum patients were housewife (57.78%), max. patients were with having krura koth(53.33%), maximum patients with sedentary life style(68.89%), max. patients with positive family history(60%).

**Effect on objective criteria-** The effect of *Navak guggulu* and therapies in case of reduction of **body weight** was 4.46% in NG group, 4.80% in LB group and 3.99% in DU group. Though all the results were highly significant ( $p < 0.001$ ) in all the three groups, but the LB group provided best response followed by NG group and then DU group.(Table -1)

The reduction observed in **B.M.I.** was 4.73% in NG group, 5.34% in LB group, and 3.79% in DU group. The results were

highly significant in case of LB & DU group ( $p < 0.001$ ), and the result of NG group was significant, ( $p = 0.001$ ). (Table -2)

The reduction in **waist circumference, hip circumference and mid arm circumference** for the **group NG** was 4.78%, 3.08% and 5.13% respectively. The results were highly significant for waist and hip circumference( $p < 0.001$ ), but significant in case of mid arm circumference( $p = 0.001$ ). (Table -3).

The reduction in waist circumference, hip circumference and mid arm circumference for the **group LB** was 4.92%, 1.69% and 5.61% respectively. The results were highly significant for all the circumferences ( $p < 0.001$ ). (Table-4).

The reduction in waist circumference, hip circumference and mid arm circumference for the **group DU** was 3.73%, 1.33% and 3.76% respectively. The results were highly significant for all the circumferences ( $p < 0.001$ ). (Table -5).

Here all the groups were highly significant in reduction of body circumferences except reduction of mid arm circumference by NG group, which was significant( $p = 0.001$ ).

Effect on reduction of **S. Cholesterol** by the NG group was 15.62%, 11.52% in LB group and 13.28% in DU group. Here the results were highly significant in case of NG & LB groups ( $p < 0.001$ ) and insignificant in group DU ( $p > 0.01$ ) (Table -6)

**TABLE -1**

Weight (kg)	Mean score (BT)	Mean score (AT)	M.D.	%	S.D.	S.E.	t	P
Group NG	73.42	70.14	3.28	4.46	3.21	0.74	4.45	<0.001
Group LB	75.23	71.62	3.61	4.80	1.80	0.50	7.22	<0.001
Group DU	79.77	76.59	3.18	3.99	0.96	0.29	11.04	<0.001

**TABLE -2**

B.M.I. (kg/m <sup>2</sup> )	Mean score (BT)	Mean score (AT)	M.D.	%	S.D.	S.E.	t	P
Group NG	31.49	30.01	1.48	4.73	1.80	0.50	2.98	0.001

Group LB	32.82	31.07	1.75	5.34	0.79	0.23	7.69	<0.001
Group DU	34.98	33.66	1.32	3.79	0.54	0.16	8.52	<0.001

**TABLE -3**

N.G. GROUP	Mean score (BT)	Mean score (AT)	M.D.	%	S.D.	S.E.	t	P
Waist circumference(cm)	99.05	94.32	4.73	4.78	6.95	1.59	2.97	0.001
Hip circumference(cm)	105.89	102.42	3.47	3.08	1.72	0.39	8.23	<0.001
Mid arm circumference(cm)	34.66	33.04	1.62	5.13	2.50	0.57	3.10	0.001

**TABLE -4**

L.B. GROUP	Mean core (BT)	Mean score (AT)	M.D.	%	S.D.	S.E.	t	P
Waist circumference(cm)	102.12	97.09	5.03	4.92	3.54	0.98	5.11	<0.001
Hip circumference(cm)	108.96	107.12	1.84	1.69	1.02	0.28	6.47	<0.001
Mid arm circumference(cm)	34.27	32.35	1.92	5.61	0.73	0.20	9.48	<0.001

The reduction in **Serum triglyceride** was 10.54 % in NG group , 5.57% in LB group and 10.18% in DU group. The result of NG and DU groups were significant (p =0.001), while it is insignificant for LB group.(p>0.05) (Table – 7).

**Serum HDL** level was increased up to 19.71 % (P<0.001) in Navak guggulu group, while in Basti group it is increased 21.96 % (p=0.01) , and in udvartana group it increased up to 25.84% (p<0.001). Hence NG group, and DU group proved highly significant, while LB group was significant. (Table – 8).

Reduction in **Serum LDL** was 17.40 % in NG group(P=0.001) while 19.27 % in Basti group(P<0.001), and 13.62% in DU group(p<0.001). Thus NG group is significant and LB & DU groups are highly significant. (Table – 9).

Reduction in **Serum VLDL** was 11.72 % in NG group while in LB group it is 9.34 % , and in DU group it is 20.58%. The result in NG and DU groups are highly significant(p<0.001), while in LB group it is statistically insignificant(p>0.05). (Table – 10).

**Effect on subjective criteria** - The effect of treatment on *Ati-nidra* (Excessive sleep) was 62.50%, 60% and 50% decrease in group NG, LB and DU respectively. Statistically all three groups were highly significant (p<0.001). In the symptom *Daurgandhya* (Foetid smell) the reduction was 76.08%, 40% and 47.62% respectively in NG , LB, and DU groups, all were statistically highly significant.(p<0.001). The symptom *Ati-kshuda* (Increased appetite) was controlled by 37.84%, 50% and 37.03% in group NG, LB and DU group respectively, all were highly

significant ( $p < 0.001$ ). The **Ati-pipasa** (Excessive thirst) is controlled by 32.14%, 48% and 47.36% in group NG, LB and DU resp., all the three groups were highly significant ( $p < 0.001$ ). The **Swedadhikya** (Excessive sweating) was controlled by 61.11%, 58.82% and 57.14% in NG, LB and DU group respectively. Statistically all the three groups were highly significant ( $p < 0.001$ ). The betterment in **Kshudra swasa** (Short breath) was 53.13%, 75% and 32% in NG, LB and DU groups respectively, statistically all the three groups were highly significant ( $p < 0.001$ ). The betterment in **Alasya** (lassitude) was 55.67%, 38.10% and 31.25% in NG, LB and DU groups respectively, statistically all the three groups were highly significant ( $p < 0.001$ ). The decrease in **Anga-chaltva** (Movement of body parts) was 55.88%, 28% and 38.46% in NG, LB and DU groups respectively, statistically NG and DU groups

were highly significant ( $p < 0.001$ ) while LB group was significant ( $p = 0.001$ ) (Table- 11) **Overall effect of the therapy** showed that , in **N.G. group**, there was 7 patients, who got marked improvement(35%), 9 patients (45%) had got moderate improvement, 3 patients had got mild improvement(15%), and only 1 patient did not get any benefit by the therapy(5%).

In **L.B. group**, marked improvement was seen in 7 patients (53.8%), moderate improvement in 4 patients(30.77%), and mild improvement in 2 patients(15.38%). Every patients had got benefit , no patient was unchanged.

In **D.U. group**, marked improvement was seen in 2 patients(16.67%), moderate improvement in 6 patients(50%), and mild improvement in 3 patients(25%), and only 1 patient did not get any benefit by the therapy (Table – 12)

**TABLE – 5**

D.U. GROUP	Mean score (BT)	Mean score (AT)	M.D.	%	S.D.	S.E.	t	P
Waist circumference(cm)	101.58	97.79	3.79	3.73	2.29	0.66	5.73	<0.001
Hip circumference(cm)	112.88	111.38	1.50	1.33	0.48	0.14	10.9	<0.001
Mid arm circumference(cm)	34.33	33.04	1.29	3.76	0.33	0.09	13.38	<0.001

**TABLE - 6**

S. CHOLESTEROL	Mean score (BT)	Mean score (AT)	M.D.	%	S.D.	S.E.	t	P
Group NG	208.97	176.31	32.66	15.62	23.41	6.04	5.40	<0.001
Group LB	190.3	168.37	21.93	11.52	6.33	1.90	11.49	<0.001
Group DU	212.44	184.22	28.22	13.28	33.16	10.48	2.69	>0.01

**TABLE - 7**

S. TRIGLYSERIDE	Mean score (BT)	Mean score (AT)	M.D.	%	S.D.	S.E.	t	P
Group NG	179.37	160.45	18.92	10.54	21.76	5.62	3.37	0.001
Group LB	184.87	174.57	10.30	5.57	31.12	9.38	1.09	>0.05
Group DU	187.45	168.37	19.08	10.18	13.74	4.34	4.39	0.001



**TABLE - 8**

S. HDL	Mean score (BT)	Mean score (AT)	M.D.	%	S.D.	S.E.	t	P
Group NG	47.03	56.29	9.26	19.71	5.84	1.50	6.18	<0.001
Group LB	31.97	38.99	7.02	21.96	8.06	2.54	2.76	0.01
Group Up	34.17	43	8.83	25.84	6.12	1.93	4.55	<0.001

**TABLE - 9**

S. LDL	Mean score (BT)	Mean score (AT)	M.D.	%	S.D.	S.E.	t	P
Group NG	125.36	103.54	21.82	17.40	22.53	5.82	3.75	0.001
Group LB	129.21	104.30	24.91	19.27	8.05	2.54	9.78	<0.001
Group DU	181.40	156.70	24.70	13.62	15.25	4.82	5.12	<0.001

**TABLE - 10**

S. VLDL	Mean score (BT)	Mean score (AT)	M.D.	%	S.D.	S.E.	t	P
Group NG	46.16	39.67	6.49	11.72	4.18	0.98	5.49	<0.001
Group LB	45.22	41	4.22	9.34	7.42	2.35	1.79	>0.05
Group DU	41.30	32.80	8.50	20.58	4.01	1.26	6.71	<0.001

**TABLE -11**

SYMPTOMS	N.G. GROUP		L.B. GROUP		D.U. GROUP	
	% RELIEF	p value	% RELIEF	p value	% RELIEF	p value
ATI-NIDRA	62.5	<0.001	60	<0.001	50	<0.001
DAURGANDHYA	76.08	<0.001	40	<0.001	47.62	<0.001
ATI- KSHUDA	37.84	<0.001	50	<0.001	37.03	<0.001
ATI-PIPASA	32.14	<0.001	48	<0.001	47.36	<0.001
SWEDADHIKYA	61.11	<0.001	58.82	<0.001	57.14	<0.001
ANGA CHALATVA	55.88	<0.001	28	0.001	38.46	<0.001
KSHUDRA SWAS	53.13	<0.001	75	<0.001	32	<0.001
ALASAYA	55.67	<0.001	38.10	<0.001	31.25	<0.001

**TABLE - 12**

OVER ALL EFFECT	N.G. GROUP		L.B. GROUP		D.U. GROUP	
	NO. OF PATIENTS	%	NO. OF PATIENTS	%	NO. OF PATIENTS	%
Cured	0	0	0	0	0	0
Marked Improvement	7	35	7	53.8	2	16.67

Moderate Improvement	9	45	4	30.77	6	50
Mild Improvement	3	15	2	15.38	3	25
Unchanged	1	5	0	0	1	8.33

## DISCUSSION

The effect of *Navak guggulu*, *lekhan basti* and *Udvartana* were very encouraging in reduction of weight, B.M.I. and body circumferences. The explanation of this could be that *Navak guggulu* corrects the *Medo-dhatvagnimandya* and checks the process of *Medovridhi*. In *Navaka Guggulu* maximum ingredient have *Katu Rasa*, *Laghu- Ruksha Guna*, *Ushna-Virya* and *Katu-Vipaka*, *Vata-kapha-shamaka*, *Karshana*, *Lekhaniya*, *Medorogahara*, *Amapachana*, & *Dhatu-shoshana* properties, which normalize the state of *Agni*. Thus regulated *Jatharagni*, checks the excessive growth and accumulation of *Medodhatu*.

In *Lekhan basti*, *basti dravya* get absorbed from the colon and reaches at the cellular level. After reaching at cellular level, they perform the action of *Samprapti Vighatana* by virtue of its *Rasa*, *Guna*, *Virya*, *Vipaka*. The drugs of *Lekhana Basti* have dominance of *Katu-Tikta-Kashaya* *Rasa*, *Laghu-Tikshna-Shukshma Guna*, *Ushna Virya* and *Katu Vipaka*. *Katu*, *Tikta*, *Kashaya Rasa* reduces *Kleda* hence they cause depletion of the *Meda Dhatus*. It also reduces *Kapha-Meda-Sweda Dushti* and thus helps in *Lekhana Karma*. *Laghu Guna* is a *Vayu*, *Agni* and *Akasha*, *Mahabhuta pradhana*. It causes *Krishata* and *Dhatukshya*. Reduction of over nourished *Dhatu* is the main aim of *Lekhana Karma* which helps in *Sthaulya*. *Sukshma guna* helps the drug to reach at cellular level because of its *Vayu*, *Akasha* and *Agni Mahabhuta* dominance. *Tikshna Guna* is dominated by *Agni Mahabhuta* and it break downs the *Dosha Sanghata* in *srotas*, thus it help in removing *Sanga* (obstruction) in *Srotas*. By removing obstruction it keeps

movement of *Vyana Vayu* in normal condition. Thus *Vyana Vayu* can transport the nutrient to its related *Dhatu* and *Uttrotar Dhatu Nirmana* takes place properly. Hence the process of *Medovridhi* is checked. *Ushna Virya* is dominated by *Agni Mahabhuta* and is responsible for the reduction of *Meda*. It is having *Deepana-Pachana* and *Kapha-Vata Shamaka* property. By the virtue of *Deepana-Pachana Karma Basti Dravya* increases *Agni* at all levels and it reduces *Ama* and corrects *Medodhatvagni Mandya*. *Katu vipaka* due to its *Laghu Ruksha Guna* causes *Dhatu Kshaya* and reduces excessive *Meda Dhatu*. Moreover it pacifies increase *Kapha*. Castor oil and Honey present in the *Lekhana Basti* reduces *Rasa-Rakta gata Meda*. Most of the drugs of this *Basti* were having *Lekhana* property. *Lekhana Basti* due to its *Lekhana* property may cause *Dhatukshya* and other complications. But *Shilajit* present in it provides *Rasayana* effect against *Dhatukshya*. In this way *Basti Dravyas* reduces *Kapha-Vata Dushti*, increases *Agni*, digests the *Ama*, correct the *Medodhatvagni Mandya*, remove obstruction in *Medovaha srotas* and nourishes *Uttardhatu*. Thus, it becomes helpful in disease obesity.

In *Udvartana*, due to increased friction to all parts of the body, the increased *meda* is depleted and the increased *ushma* / heat generated during *Udvartana* digested the *Ama* thus corrected the *Agnimandhya* which causes obesity. The properties of drugs of *Shailayadi churn* are *ruksh*, *ushn* and *shukshma*. By virtues of it, it helps in reducing the excess *meda* and *kleda*, and reaches to cellular level to correct the *agnimandhya*. Scientifically it could be assumed that due to increased friction to all

parts of the body, the beta-3 receptor present in the adipose tissue of subcutaneous fat are stimulated, so the triglyceride present in the subcutaneous tissue will break down into fatty acids. These fatty acids are carried out to liver due to the effect of centripetal massage, which increases the circulation to the internal organ for the conversion of fatty acid into bile. As less caloric food is supplied along with heavy exercises, the body needs more energy to meet the same. In the absence of carbohydrate fats are utilized for the purpose of energy production. The bile that is formed in liver, is being expelled out through faeces. Hence the reabsorption of the bile will be decreased, inturn utilizing the lipid, which is circulated through the blood. Promotion of excretion of bile in the faeces is used as one of the treatment principle to treat hyperlipidemia.

### CONCLUSION

The conclusion of the present study was that all the three groups viz. *Navak guggulu* group, *Lekhan basti* group and *Dry Udvartana* group proved to be efficacious in the disease obesity. *Navak guggulu*, *Basti*, and *Udvartana* provided good result in almost all the parameters because they eliminates *Doshas* from the body and

simultaneously perform the action of *Samprapti Vighatana* at cellular level.

### REFERENCES:

1. Srivastava R.K., Dave Alankruta R. et al- A ckinical study on aetiopathogenesis of syhaulya and its management by Navak guggulu – 2006, IPGT&R, Jam nagar.
2. Savjani Rekha, Baghel M.S.et al – A clinical study on the management of sthaulya by panchtikt guggulu vati, panchtikt ghan vati and panchtikt lekhan basti.- 2002, IPGT&R, Jam nagar.
3. Khunt Tejal, Vyas Sudhaben N., Thakar A.B., Bhatt N.N., et al – To compare efficacy of virechana and lekhan basti in management of sthaulya -2005, IPGT&R, Jam nagar.
4. Chakrapani, Chakradutta, verse .no. 36/18.
5. Bhavprakash, madhyam khand, verse no. 39/28
6. Sushrut, shushrut samhita, 13th edition, 2002, Chaukhambha publication,verse Su. Chi. 38/82

### CORRESPONDING AUTHOR

**Dr.Parul Sharma**

Medical officer, deptt. of Panchkarma, Rishikul Govt.P.G. Ayurvedic college, haridwar,Uttarakhand, India.

**Email:** parul.ved@gmail.com

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