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ROLE OF *TRIPHALA VIDANGADI LEKHANA BASTI & VIDANGADI GHANA VATI* IN THE MANAGEMENT OF *STHOULYA* W.S.R. TO OBESITY

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ABSTRACT

Background: According to the W.H.O., Overweight and obesity are the **fifth** leading risk for global deaths.[1] Currently almost **1 in 5 men and over 1 in 6 women** are overweight. Lack of physical activity, frequent intake of food, industrialization, stress during the work, various types of junk food e.g. fast food, bakery items, increased amount of the soft drink result is *Sthoulya*. An individual whose increased *Meda* and *Mamsadhatu* makes his hips, abdomen and breasts pendulous and whose vitality is much less than his body size is *Sthoulya* (obesity). In modern medical science oral medication is current widely available for weight reduction & approved for long term use, but long term use is associated with high rates of gastrointestinal side effects. The most effective treatment for obesity is bariatric surgery is also not cost effective & due to risk of complications researchers are searching for other safe & effective treatment. In *Ayurveda* mere attention are given on lifestyle modification according to different places, seasons & even daily regimen (*Ahara*, *Vihara*, *Nidana Parivarjana*). *Shodhana Karma* (purification therapy) is prescribed for treatment of *Sthoulya* in *Ayurveda*.

Material and Methods:

1) Study design-This is **a randomized controlled, open level, parallel** group study.

2) Trail period: 32 days. 3) Selction of cases: The study was conducted on patients of age group of 16-70 years which were randomly selected from O.P.D. of Kalawati Ayurvedic

Medical College & Research Centre, Kasganj. 4) Sample size: Total 30 cases, were randomly divided in **2 groups.**

(a) Group A: *Triphala Vidangadi Lekhana Basti* in *Kala Basti manner* consists of sixteen *Basti*.

(b) Group B: *Vidangadi Ghana Vati with trifala quatha as oral medication.*

Results: Singnificant results in most of subjective & objective parameters of ***Sthoulya.*** **Discussion:** We discussed on Probable mode of action of *Triphala Vidangadi Lekhana Basti* & *Vidangadi Ghanavati +Triphala Quatha(*oral medicine). **Conclusion:** This showed that *Lekhana Basti(Triphala Vidangadi)* proved more significant(beneficial) for the patients then *Vidangadi Ghanavati +Triphala Quatha(*oral medicine). it can be concluded that the *Sthoulya* can be better managed by administration of *Lekhana Basti*.

KEYWORDS: Obesity, *Sthoulya*, *Lekhana Basti.*

INTRODUCTION

Sthoulya is abnormal and excess accumulation of *Meda Dhatu*. In contemporary medical science it is compared with obesity and it is defined as excess body and visceral fat that poses health risk. According to W.H.O. 2008, more than 1.4 billion adults, 20 and older, were overweight. Of these over 200 million men and nearly 300 million women were obese.[2] 35% of adults aged 20 and over were overweight in 2008, and 11% were obese. In 2011, more than 40 million children under the age of five were overweight. Overall more than one in ten of the world's adult population was obese and women more likely to be obese than men.[3] Obesity has taken place of an epidemic, still majority of people are not aware of the factors that welcomes this problem and the results that are obtained after one gets into this problem.[4] **At least 2.6 million people each year die as a result of being overweight or obese.[5]** An individual whose increased *Meda* and *Mamsadhatu* makes his hips, abdomen and breasts pendulous and whose vitality is much less than his body size is *Sthoulya* (obese). *Sthoulya* has been classified under *"Ashta Nindita Purusha".*[6]

In *Sthoulya* increased *Meda, Agni* and *Vayu,* which creates complications like *Prameha-Pidika, Jwara, Vidradhi and Bhagandara* etc. Besides this, *Sthoulya* precipitates diseases like diabetes mellitus, coronary heart diseases, gallstone, osteoarthritis, hypertension, infertility, and atherosclerosis etc. Derangement of *Agni* or digestive power leads to production of *Ama*, which disturbs tissue fire of fatty tissues and blocks the proper formation of further tissues. Improperly formed fatty tissue accumulates in the body causing obesity. So metabolic

disturbances in the etio-pathogenesis of Sthoulya are emphasized by Acharyas. Looking in to the facts of pathogenesis of *Sthoulya* mentioned in classical texts, it can be said that the drugs, which corrects the functions of *Bhutaagni* and *Dhatvaagni* (metabolism) and at the same time have weight or fat or cholesterol reducing actions (*Medohara*, *Kaphahara*), may be suitable for the management. Considering these facts, *Triphala Vidangadi Lekhana Basti* and *Vidangadi Ghana Vati* were formulated. Primary aim of this study is to evaluate, the comparative efficacy of drugs administered through *Basti* and orally.

OBJECTIVES OF THE STUDY

The present study is been designed with following objectives.

1. To assess the effect of *Triphala Vidangadi Lekhana Basti* in the management of *Sthoulya* w.s.r.to obesity.
2. To assess the effect of *Vidangadi Ghana Vati* in the management of *Sthoulya* w.s.r. to Obesity.
3. To compare the effect of *Triphala Vidangadi Lekhana Basti* and *Vidangadi Ghana Vati* in the management of *Sthoulya* w.s.r. to obesity.

MATERIAL AND METHODS

The present study was carried out at Panchakarma Out Patient Department and Indoor Patient Department of Kalawati Ayurvedic Medical College & Research Centre, Kasganjbetween the periods of December 2018 to August 2019. A total of 35 patients of *Sthoulya* were screened and consideration of inclusion and exclusion criteria out of them 33 clinically diagnosed patients were Selected for trail & got registered. 33 patients were divided randomly in two groups out of them 30 patients (15 in each group) had completed the trial successfully.

of study

A randomized controlled, open level clinical trial was conducted on patients, where patients were given treatment for 16 days with 16 days follow-up. Patients were given specific instructions on diet and life style modifications.

Study Plan design

This is a randomized controlled, open level study.

a) Inclusion criteria

- Age between 16-70 yrs suffering from *Sthoulya* [obesity] irrespective of religion, sex, occupation etc.
- Patients who full fill the diagnostic criteria of *Sthoulya* [obesity].
- Patients who are fit for *Basti Karma.*
- Patients who are willing to sign the consent form.

b) Exclusion criteria

- Patients with long term Steroid treatment.
- Patients with evidence of severe renal, hepatic and cardiac diseases.
- Pregnant women and lactating mother.
- Patients who have any severe metabolic disorder.

c) Withdrawal criteria

- Patient withdrawing consent for any reason.
- Any other acute illness that requires immediate emergency management.

Every patient was registered after fulfilling the inclusion criteria underwent assessment of symptoms and different components of weight, BMI, anthropometric parameters.

INVESTIGATIONS

Lipid profile was carried out in all the patients before initiating the administration of trial drugs and after the completion of course of treatment. Routine investigation of blood and urine were also done to rule out other pathologies and to judge any adverse effect of the drugs.

CRITERIA OF ASSESSMENT

- Weight and height were recorded before starting the treatment and later on every week of the study. Weight was also recorded of all the patients who had come for the follow-up study
- Circumferences of fatty parts (chest, abdomen, hip, mid arm forearm and mid thigh) were recorded before and thereafter every week, till the completion of the course of treatment, to assess the effect of therapy
- The skin fold thickness was measured by Vernier calipers before and after treatment in fixed areas of middle portions of the biceps and triceps muscles, middle portion of the

supra iliac region and the anterior surface of mid thigh region and of abdominal muscle at umbilicus.

The symptoms were assigned definite score and were assessed before and after the treatment. Paired "*t*" test was applied for the statistical analysis of the results. Moreover, assessment of *Dosha*, *Dushya*, and *Srotasa* based on their dominant symptoms was also carried out.

Grouping of the Patients

Group A: *Triphala Vidangadi Lekhana Basti* Group *Kala Basti* consists of sixteen *Bastis* were given in a specific schedule i.e. at the starting first *Anuvasana Basti*, then *Anuvasana* and *Niruha* alternatively and at last three *Anuvasana*. Dose of *Niruha Basti* was approx. 720ml (1 Prastha/ 64 Tola as *Madhyama Matra* of *Sharangdhara*) and for *Anuvasana Basti 90ml* was given.

Group B: *Vidangadi Ghana Vati*

Vidangadi Ghana Vati in dose of 2 tablets each of 500m.g. twice a day with *Annupana* of *Triphala* Quatha in the dose of 20 ml for 16 days. *Vidangadi Ghana Vati* is prepared from *Vidangadi churna* by *Ghanavati Nirmana kalpana* process.

Contents of the *Lekhana Basti*

Table 1- Contents of *Lekhana Basti.*[7]

S. No.	*Sanskrit name*	Botanical name	Part used	Quantity
1.	***Madhu***	Honey		180g
2.	***Saindhava***	Rock salt		10g
3.	***Triphala Taila***			90ml
a.	*Tila Taila*	Sesamum orientale Linn	Seed oil	
b.	*Haritaki*	Terminalia chebula Retz.	*Phala*	
c.	*Amalki*	Phyllanthus emblica Linn.	*Phala*	
d.	*Vibhitaki*	Terminalia bellirica[Gaertn]	*Phala*	
4.	***Vidangadi Churna(Kalka)***			40g
a.	*Vidanga*	*Embelia ribes*	*Phala*	
b.	*Nagara*	*Zingiber officinale*	*Kanda*	
c.	*Yava*	*Hordeum vulgare*	*Bija(seed)*	
d.	*Amalaki*	*Phyllanthus emblica* Linn.	*Phala*	
e.	*Kalalauha*	*Terminalia bellirica* (Gaertn) Roxb.	*Bhasma*	
f.	*Yavakshara*	*Hordeum vulgare* Linn.	*Panchanga*	
5.	***Triphala Quatha***			400ml
a.	*Haritaki*	*Terminalia chebula* Retz.	*Phala*	
b.	*Amalki*	*Phyllanthus emblica* Linn.	*Phala*	
c.	*Vibhitaki*	*Terminalia bellirica* (Gaertn) Roxb.	*Phala*	
			Total	720ml

Contents of the *Vidangadi Ghanavati*

Table 2: Contents of the *Vidangadi Ghanavati*.

	VIDANGADI CHURNA	**Botanical name**	**Part used**	**Part**
1.	*Vidanga*	*Embelia ribes*	*Phala*	5part
2.	*Nagara*	*Zingiber officinale*	*Kanda*	5 part
3.	*Yava*	*Hordeum vulgare*	*Bija(seed)*	5part
4.	*Amalaki*	*Emblica officinale*	*Phala*	5part
5.	*Kalalauha*	*Iron powder*	*Bhasma*	1part
6.	*Yavakshara*	*Hordeum vulgare* Linn.	*Panchanga*	1part
	Triphala Quatha	As Anupana		
1.	*Haritaki*	*Terminalia chebula* Retz.	Fruit	1part
2.	*Amalki*	*Phyllanthus emblica* Linn.	Fruit	1part
3.	*Vibhitaki*	*Terminalia bellirica* (Gaertn)	Fruit	1part

OBSERVATION

In the this study of 30 patients of *Sthoulya*, maximum number of patients were in the age group of 26-30 years (26.66%), females (60%), House wife (71%) Hindu by religion (63.33%), married (83.33%), belonging to middle socioeconomic class (63.33%), and from urban habitat (53.33%). Further, in this study maximum number of patients were of *Pitta-kapha Prakriti* (50.0%) followed by *Vata-kapha Prakriti* (30.0%). 83.3% patients of this study were vegetarian, 60% patients were having sedentary lifestyle, 70% were not doing any sort of exercise at all and 53.33% patients were having heavy sleep.

Majority of the patients in this study, that is, 53.33% were taking *Guru* (heavy to digest) *and Snigdha* (unctuous) dominant *Ahara*, and 83.33% of the patients were taking food 2-3 times in a day.

In this study, *Anga Chalatva* (slackness) was reported in only 6.66% patients, *Ati Kshudha* (excessive hunger) in 90% of patients. Other signs and symptoms observed in patients were *Atipipasa* (excessive thirst) (20%), *Daurbalya* (generalized weakness) (90%), *Swedadhikya* (excessive sweating) (50%), *Gatragandya* (body smell) 40% and Javoparodha (Loss of enthusiasm) 80% and Krichhavyavayata (difficulty in sexual activity) 26.67% of the patients.

Patients having a body weight in the range of 71-80 kg were 36.66% followed by 81-90 kg were 26.67, height between 151-160 cm were 63.33% and BMI between 30-34.9 kg/m^2 were 33.33% of patients followed by 30% in 35-39.9 and 25-29.9 kg/m^2 of BMI.

RESULT

Table 1: Effect of the therapy in Subjective Parameters in Group-A.

Symptoms	Mean		Mean Diff	% Relief	SD	SE	P Value	Sig
	BT	AT						
Atikshudha	19.4	15	4.4	22.68	1.931	0..4430	<0.001	V.S.
Atipipasa	9.00	7.00	2.00	22.22	3.555	1.262	<0.05	S.
Javoprodha	15.53	18.80	-3.27	21.05	2.205	0.7552	<0.001	V.S.
Swedadhikya	2.600	2.155	0.455	17.11	0.771	0.270	>0.05	N.S.
Daurgandhya	0.741	0.566	0.175	23.16	0.572	0.1356	>0.05	N.S
Daurbalya	50.00	28.00	22.00	44.00	11.234	3.281	<0.001	V.S.
Krichravyavayata	0.900	0.350	0.550	61.11	1.455	0.986	<0.05	S

V.S.- Very Significant, **S.-** Significant, **N.S.-** Not Significant

Table 2: Effect of the therapy in Subjective Parameters in Group-B.

Symptoms	Mean		Mean Diff	% Relief	SD	SE	P Value	Sig
	BT	AT						
Atikshudha	19.58	15.62	3.96	20.22	4.535	0.963	<0.001	V.S
Atipipasa	8.60	5.60	3.00	34.88	0.833	0.1090	<0.001	V.S
Javoprodha	14.33	15.33	-1.00	06.97	2.821	1.471	<0.05	S
Swedadhikya	1.76	1.43	0.33	18.00	1.515	0.1069	>0.05	N.S
Daurgandhya	0.600	0.500	0.100	16.00	0.657	0.2265	>0.05	N.S
Daurbalya	39.69	24.33	15.36	38.69	5.623	2.450	<0.001	V.S
Krichravyavayata	1.66	0.860	0.800	48.19	0.566	0.45	>0.05	N.S

S.- Significant, **V.S.-** Very significant, **N.S.-** Not Significant

In groupA- *Vidangadi Lekhana Basti* was **significant** in *Kshudhaadhikyata, Pipasadhikyata, Daurabalya, Krichhavyavayata* and *Javoparodha* While **Not Significant** in *Dauragandhya, & Swedadhikyata.*

In groupB- *Vidangadi Ghana Vati* was **significant** in **decrease symptoms of** *Kshudhaadhikyata, Daurabalya,* Pipasadhikyata & *Javoparodha* while **Not significant** in decrease symptoms of *Swedatiyoga, Dauragandhya, Krichhavyavayata.*

Table 9: Percentage wise relief in two Groups in subjective parameters.

Subjective parameters	%Relief in Group A	%Relief in Group B
Atikshudha	22.68	20.22
Atipipasa	22.22	34.88
Javoprodha	21.05	06.97
Swedadhikya	17.11	18.00
Daurgandhya	23.16	16.00
Daurbalya	44.00	38.69
Krichravyavayata	61.11	48.19

Table 3: Effect of the therapy on objective Parameters in Group A.

Variables	Mean		Mean Diff	% Relief	SD	SE	T Value	P Value	Sig.
	BT	AT							
Weight	90.00	81.52	08.48	9.42	1.556	0.696	12.00	<0.001	V.S
BMI	35.00	33.11	1.89	5.40	0.5856	0.151	9.223	<0.001	V.S
Chest circumference	111.5	106.3	5.20	4.66	1.821	0.470	6.808	<0.001	V.S
Waist circumference	106.0	97.80	8.20	7.73	3.240	0.836	8.050	<0.001	V.S
Hip circumference	121.0	118.6	2.40	1.98	2.492	0.643	4.248	<0.001	V.S
Mid-arm circumference	36.0	34.13	1.87	5.19	1.506	0.388	4.802	<0.001	V.S
Mid-thigh circumference	62.19	59.16	3.03	4.87	2.997	0.773	4.049	<0.05	S
Triceps SFT	4.187	3.713	0.473	11.29	0.2815	0.072	6.512	<0.001	V.S
Subscapular SFT	3.125	2.90	0.225	7.20	0.4307	0.111	6.774	<0.001	V.S
Abdominal SFT	3.421	2.691	0.73	21.33	0.7015	0.181	5.668	<0.001	V.S
Waist-hip ratio	0.872	0.832	0.040	4.66	0.0397	0.010	3.965	<0.05	S

SFT- Skinfold thickness, **S**-significant, **V.S.-** Very significant,

Table 4: Effect of the therapy on objective Parameters in Group B.

Variables	Mean		Mean Diff	% Relief	SD	SE	T Value	P Value	Sig.
	BT	AT							
Weight	80.56	78.46	2.1	2.60	0.952	0.331	4.026	<0.05	S
BMI	34.20	33.25	0.95	2.77	0.489	0.125	3.225	<0.05	S
Chest circumference	103.5	102.2	1.30	1.25	0.526	0.192	4.56	<0.05	S
Waist circumference	96.39	94.06	2.867	2.41	1.602	0.456	8.123	<0.001	V.S
Hip circumference	118.3	117.2	1.10	0.92	1.365	0.426	3.449	>0.05	N.S
Mid-arm circumference	34.50	33.20	1.30	3.76	1.511	0.562	4.567	<0.001	V.S
Mid-thigh circumference	59.00	58.05	0.95	2.50	1.085	0.587	3.265	>0.05	N.S
Triceps SFT	3.30	2.720	0.580	17.57	0.565	0.228	3.516	<0.001	V.S
Subscapular SFT	3.310	3.000	0.310	9.36	0.441	0.096	3.321	>0.05	N.S
Abdominal SFT	3.220	3.000	0.220	6.83	0.586	0.233	3.369	<0.05	S.
Waist-hip ratio	0.852	0.809	0.043	5.04	0.045	0.004	2.300	>0.05	N.S

SFT- Skinfold thickness, **N.S.-** Not significant, **V.S.-** Very significant, **S.-** Significant.

- ✓ In group A *Vidangadi Lekhana Basti* was **significant** in decrease symptoms of Body Weight, B.M.I, Waist Circumference, Chest Circumference, Hip circumference, waist: Hip ratio, Mid arm, Mid thigh, Triceps skinfold thikness, Subscapular skinfold thikness, Abdominal skinfold thikness.
- ✓ In group B *Vidangadi Ghana Vati* was **significant** in decrease symptoms of Body Weight, B.M.I, Waist Circumference, Chest Circumference & Triceps skinfold thikness, Subscapular skinfold thikness, Abdominal skinfold thikness. & Not significant in Hip circumference, Waist: Hip ratio, Mid thigh, Subscapular skinfold thikness Physical Parameters.

Table 10: Percentage wise relief into two Groups in objective parameters.

Objective parameters	%Relief in Group A	%Relief in Group B
Weight	9.42	2.60
BMI	5.40	2.77
Chest circumference	4.66	1.25
Waist circumference	7.73	2.41
Hip circumference	1.98	0.92
Mid-arm circumference	5.19	3.76
Mid-thigh circumference	4.87	2.50
Triceps SFT	11.29	17.57
Subscapular SFT	7.20	9.36
Abdominal SFT	21.33	6.83
Waist-hip ratio	4.66	5.04

Table 6: Effect of the therapy on Laboratory Parameters in Group A.

Variables	Mean		Mean Diff	% Relief	SD	SE	T Value	P Value	Sig.
	BT	AT							
HDL	45.33	43.66	1.67	3.68	3.274	0.8454	0.7176	>0.05	N.S.
LDL	104	95.33	8.67	8.33	26.478	6.837	1.385	>0.05	N.S.
VLDL	32.28	30.124	2.156	6.67	7.075	1.827	0.5744	>0.05	N.S.
Serum Cholesterol	190.0	175.0	15.00	7.89	31.263	8.072	1.738	>0.05	N.S.
Serum triglyceride	162.0	156.5	5.5	3.39	35.606	9.194	0.5618	>0.05	N.S.

Table 7: Effect of the therapy on Laboratory Parameters in Group B.

Variables	Mean		Mean Diff	% Relief	SD	SE	T Value	P Value	Sig.
	BT	AT							
HDL	48.06	46.35	1.71	3.55	5.071	1.309	1.446	>0.05	N.S.
LDL	111.5	104.5	7.00	6.27	29.673	7.662	0.8719	>0.05	N.S.
VLDL	33.28	28.66	4.62	13.88	13.468	3.478	1.323	>0.05	N.S.
Serum Cholesterol	190.3	185.6	4.7	2.469	38.084	9.833	0.4610	>0.05	N.S.
Serum triglyceride	171.2	155.5	15.7	9.17	54.273	14.013	0.5376	>0.05	N.S.

Both groups A & B were **Not significant** in decrease symptoms of Serum cholesterol, Serum Triglyceride, HDL, LDL and VLDL.

Laboratory parameters	%Relief in Group A	%Relief in Group B
HDL	3.68	3.55
LDL	8.33	6.27
VLDL	6.67	13.88
Serum Cholesterol	7.89	2.469
Serum triglyceride	3.39	9.17

In Group A moderate relief was found in 73.33% (11/15) of patients, while mild relief in 20.0% (3) of patients, Significant relief in 6.67% (1) while in group B moderate relief was found in 66.67% (10/15) of patients, while mild relief in 33.33% (5) of patients.

DICUSSION

Due to *Srotorodha* of different (*Rasa & Meda*) *Srotasa* by *Ama,* nourishment(*Poshana*) of rest of *Dhatu* are diminished, thus it will not transport nutrient to *Uttaradhatu*. Hence, it causes *Dhatukshaya* which results in to *Krichhavyavayata*. The trail drugs have *Dipana, Pachana, Medohara & Srotoshodhaka Guna* which causes *Amapachana* by virtue of which *Uttaradhatu* got nourishment and reduced *Medodhatu* over the *Sphika, Udara, Stana* also helps to reduce then *Krichhavyavayata.*

Because of excess accumulation of fat, further *Dhatu* formation was hampered. Because of this nutrition to respective *Dhatu* was hampered, it causes *Javoparodha, Daurbalya, Krichravyavayata*. Its *Mala, Sweda* is increased, and due to it *Swedadhikya, Daurgandhya* is also increased. Excess fat causes *Srotorodha*, thus due to *Avarana, Vata* is get aggravated(*Vataprakopa*) and moves into the *Koshtha*(Stomach) and increases the *Jatharagni* which increases the appetite. It causes *Atikshudha* and *Atipipasa*. From the above result we may consider that, fat dissolve after therapy and by removing *Avarana* the nutrient might reach to the respective *Dhatu*, which gave potent energy to the body and reduced the symptoms of *Sthoulya*.[8]

PROBABLE MODE OF ACTION OF TRIPHALA VIDANGADI LEKHANA BASTI

Acharya Charaka said that *Bastidravya* reach up to the *Grahani*. The stimulation of *Jatharagni* present in *Grahani* by the *Basti* can be explained by this phenomena. *Snehadravya* by its *Sukshma Guna* enters into *Sukshma srotas* to reach the *Grahani*. Here it acts on *Samanavayu,* which lies in the near the seat of the *Jatharagni*. *Samanavayu* is the promoter of *Jatharagni*. Because of the action of *Sneha, Samana Vayu* attains normal function and ignites the *Jatharagni.* The important function of *Purisha* is *Vayvagnidharana* and *Avasthambha*. As mentioned earlier *Basti* drug acts first on *Apanavayu*. Thus *Basti* performs the function of *Apana Anulomana* hence increases the *Jatharagni* by enhancing the function of *Purisha* i.e. *Vayvadnidharana*, thus *Basti* has its effect over *Agni*, which is said to be the main cause of all diseases. This may be the reason for calling *Basti* as half of *Kayachikitsa.*

Grahani is the site of *Agni*. *Basti* promotes the *Agni* and *Agni* digests the *Basti* drug and helps in its absorption.[9] The action of drugs differs according to route of administration. This is evidenced from the reference of *Satuskar* and *Bhandarkar* that the $MgSo_4$ when given by orally acts as laxative, by intramuscular route acts as antidepressant and by rectal route it

reduces the intracranial pressure.[10] It is thought that an enema introduced would never ascend so high as the stomach. This is evidenced from the Best and Taylor reference that "materials introduced by enema, in some instances pass through the walls into the ilium, such incompetence may permit the enema fluid to reach the duodenum." Also the possibility of materials from even the lower bowel, reaching the mouth is strongly suggested by the fact that lycopodiumsporce, introduced into the colon by enema, has been recovered some hours later from washing of the stomach.

Basti drug reaches first to the *Pakvasaya* and then to the *Grahani*. *Pakvasaya* is the site of *Purishadhara Kala* and *Garahani* is the site of *Pittadharakala.* So *Basti* directly acts on *Purishdharakala* and *Pittadharakala*. Commentator *Dalhana* has commented that *Purishdharakala* and *Pittadharakala* are same and *Pittadhara kala* and *Majjadhara kala* are one and same.[11]

Vaidya Dvarakantha suggested that *Basti* therapy by its various medicaments (especially honey & jaggery) greatly influences the normal bacterial flora pH the colon. By this the rate of endogenous synthesis of vitamin B_{12} is increases, which is normally manufactured by colonic bacterial flora. This vitamin B_{12} has an important role in the repair and regeneration of nerves.[12]

Basti has its effect on two important factor viz. *Vata* and *Agni*. Both are responsible for formation and nutrition of *Dhatu*. *Vata* is said to be the regulator of the *Dhatu*. So by controlling the *Vata*, all *Dhatu* are able to perform their normal functions.

As *Medoroga*, is *Kapha-Meda Pradhana* & with *Medavritta Vata*, *Acharya Charak* has recommended *Ushna-Tikshna Dravyas* for *Basti* & *Acharya Sushruta* mentioned *Lekhana Basti* in management of *Medoroga*. *Lekhana Basti* has all its contents with *Ruksha, Teekshna, Laghu guna's* dominant, *Ushnavirya, Katuvipaka* dominant & *Kapha-Vatahara Guna*. With the *Samyaka* introduction of *Basti*, there is *Srotovishodhanas* along with *Deepana* & *Pachana* i.e. normalisation of *Agni* at the level of *Jatharagni* & *Dhatwagni*. Thus it helps to break the Pathogenesis of Disease. All the *Guna* of contents of *Lekhana basti* administered in this trial, helps in *Kapha-Medaharana, Karshana* of Excess *Meda* in the body & *Vatanulomana*. It helps in normalising the *Apanavayu* functions, thus controlling the functioning of rest *Vata Dosha*, thus helps to break pathogenesis of *Medoroga*.

Besides all these properties of *Basti* all the ingredients of *Lekhana Basti* are having its specific property which decreases *Meda*.

- *Madhu* (Honey) is having *Sukshma Guna* which reaches to the Srotasa and works in all over the body because it is having *Tridoshahara Guna*. *Madhu is* having *Yogavahi, Srotosodhaka Guna.*[13] It also having *Kaphanashaka* and *Chedana Guna*. *Madhu* is also mentioned in *Sthoulya Chikitsa*.[14] Due to above mentioned *Guna Madhu* is aphrodisiac in nature. It increases the properties of other ingredients by virtue of being *Yogvahi*. Due to *Srotosodhaka* capability, it cleanses the Srotas of the body and facilitates the easy reach of other drugs throughout the body.

- *Saindhava* (Rock salt) is having *Sukshma Guna* and it helps the drug (potency of the drug) to reach in the *Srotasa*, Salt mixed with Honey is capable of liquefying the viscid *Kapha* and breaking it into minute particles for their easy elimination. Similarly it may liquefy the morbid *Dosha Sanghata* and breaks it into smaller particles by virtue of its *Ushna* and *Tikshna Guna* respectively and thus helps their elimination. *Saindhava*, by virtue of *Sukshma, Vyavayi Guna*, helps *Basti Dravya* to spread and act fast. *Saindhava* is having *Ushna, Teekshna Guna* which are helpful in absorption of Basti *Dravya*, by its deep penetrating nature and it helps to pass the drug molecules in to the systemic circulation through the intestinal mucosa. It is also helpful in easy *Pratyagamana* of *Basti Dravya* without causing any untoward effect. Thus, in case of *Basti*, *Saindhava* is mainly expected to help in the fast spreading and absorption of *Basti.*[15]

- *Triphala Taila* -The drug used in *Triphala Taila* is *Ushana, Tikshana, Katu, Tikta* and *Kapha-VataShamaka* in nature. *Taila* (Sesame oil) in general is having *Vatahara Guna*, and *Medaghna Guna*. *Tila Taila* is basically *Snigdha, Ushna* and *Teekshna Guna Pradhana* which can control *Prakupita Kapha* and *Vatadosha* and can dissolve the *Medodhatu* by its *Teekshna Guna.* By the *Ushnavirya* and *Lekhana Guna* of these *Bastidravyas* it spreads throughout the body and expel out the vitiated *Dhatu* and *Dosha* by *Lekhana* (Scraping) action.

- *Vidangadi Churna Kalka* is having *Katu, Ushna,* and *Kaphavātashamaka Guna*. The properties of Vidangadi *Churna* are mention below in the table. *Yavakshara* is also mentioned as *Prakshepa dravaya*(*Ushakadi Gana*) in *Lekhan*iya *Basti.*[16] *Kalka dravya* having *Laghu, Snigdha, Deepana, Pachana Kaphanashaka Guna* and it evacuates the

Kosthagatavayu and thus corrects *Medodhatvagnimandhya.* Contents of *Ushakadigana(Yavakshara) in Vidangadi Churna Kalka* are having *Katu, Kashaya - Rasa, Ushna, Ruksha Guna and Katuvipaka.* By these properties it helps in liquification of *Kapha* and *Meda.*

- *Triphala quatha* was used in present study and *Triphala* is *Tridoshahara*. It is also having *Medohara Prabhava* because of it"s *Ruksha Guna. Triphala* is used as *Kashaya* in the preparation of *Lekhana Basti.*[17] *Sthoulya* is a *Kapha–Vataja Vyadhi*. Most of these drugs having *Tikshana, Ushana* properties and consists of *Katu, Tikta, Kashaya Rasa*. It acts on *Kapha–Vata* by virtue of its *Ushnavirya.* There is *Meda* and *Mamsavriddhi* in *Sthoulyaroga* along with production of *Amarasa*. The *Lekhana Basti* breaks the *Srotosanga*. So the active principle can reach to the cellular level. As the drugs having *Tikta, Katu* and *Kashaya Rasa*, they cause *Shoshana, Lekhana, Amahara Karma*. By the virtue of its *Deepana* and *Pachanakarma*, the combination works at the level of *Agni*. By *Deepana* properties, it mainly corrects the *Medodhatvagnimandya* and checks the further progression of *Medasanchaya* by preventing the formulation of *Meda.*

- **Probable Action of *Basti* According to Modern Science**

➢ **Absorption of *Basti***

First sodium ion in Rock Salt actively absorbs from colon

↓

High concentration of sodium ion facilitates sugar influx.

↓

Increase sodium ion in mucosal membrane generate osmotic gradient.

↓

Water follows this osmotic gradients thus passive absorption of water take place.

Free fatty acid is easily absorbed by passive diffusion in the colon.

From above description, it can be understood that how *Saindhava, Madhu, Sneha* and *quatha* is absorbed from the colon. *Saindhava* contains NaCl and other ions which fulfils the requirement for generating action potential by which ion exchange takes place through the semi permeable membrane of the intestine. This exchange of ions may help in taking out vitiated *Dosha* from the body.

And along with the *Sneha* (Lipids) and *quatha*, lipid and water soluble portion is absorbed from the colon. According to Modern pharmacokinetics, it is also proved that rectal drugs administration might exceed the oral value due to partial avoidance of hepatic first pass metabolism.

Parasympathetic stimulation in general increases the overall degree of activity of the G.I.T. by allowing rapid propulsion of contents along the tract. This is propulsive effect associated with simultaneous increase in rates of secretion by many of gastro-intestinal glands (774, Guyton Physiology).

Medicines, which are administered through the rectal route, are absorbed in the rectum and large intestines. The rectum has rich blood and lymph supply and drugs can cross through the rectal mucosa like other lipid membranes. The superior haemorrhoidal veins in the portal circulation carry the portion, which is absorbed from the upper rectal mucosa, whereas the middle and inferior haemorrhoidal veins absorb from the lower rectal mucosa, and thus enters directly into the systemic circulation.

The rectum with its vascularity and venous plexus provides a good circulation, producing the effects more quickly without affecting the liver where they may be differently metabolized. The decoction predominant *Basti* enters into the large intestine, and gets absorbed a little earlier, as the contents are less thick. The medicine component enhances elimination of waste materials, from tissue level and brings to the hollow area to throw out from the body. Also, temperature of *Basti Dravya* is lukewarm which helps in faster absorption due to vasodilatation effect. Thus, overall Pharmacodynamics showed bypass of metabolism at the level of *Jatharagni* with directly involving metabolism at the level of *Dhatwagni.* Thus improved metabolism increases BMR leading to correction of *Ras-Raktagata Poshakansha.* Thus there might be correction of plasma lipids.

In other words it can be hypothetically explained that, being a hyper tonic solution (*Niruha Basti*) after entering the large intestines, the fluids may traverse because of osmosis from hypo tonic to hyper tonic solutions i.e. fluid along with the unwanted pathological material, dragged from intracellular and extra cellular level into the large intestines and thrown out from the body. We may consider that lipids i.e. *Abaddha Meda* may also escape into the intestine & purged out with the contents of *Basti*. This may be the reason behind, recommendation of empty stomach administration of *Shodana Basti* as mentioned in our

Samhitas. In this procedure, *Lekhana Basti* contents by virtue of its properties helps to drag out *Badhdha & Abadhdha Meda* i.e. fat contents out of body which may require analysis of *Basti Nirgamana Dravya*.

The line of treatment for *Medajaroga* is described in classical text. *Vataghna, Shleshma-Medohar, Ruksha-ushna-tikshna Basti, RukshaUdvartana, Triphala, Takrarishta,* honey, *Bilvadi* decoction, *Panchamoola, Shilajatu*etc. are prescribed to treat this condition.[18] On the basis of this, *Lekhana Basti*(enema with medicated decoction) is formulated. This has *Ruksha-ushna-tikshna* properties and it was given to the patient for 16 days in *Kala Basti* manner. Even though the properties and action of individual drugs differ from that of their combinations, hence it is tried to evaluate common properties and mode of action of *Lekhana Basti* after analyzing the properties and action of each ingredient separately.

Group (B) Discussion on* probable mode of action of *Vidangadi Ghana Vati & Triphala Quatha

As per the description available in *Ayurveda* texts, therapeutic effect of a drug depends on certain pharmacodynamic properties of its particular content. These pharmacodynamic properties are- *Rasa, Guna, Virya, Vipaka and Prabhava.*

According to *Ayurvedic* Pharmacodynamic, drug do some part of work through *Rasa*, *Guna*, some part through *Virya*, some through *Vipaka* and remaining some part through *Prabhava*.

Table No 1: *Rasa panachaka* of *Vidangadi Ghana Vati (Vidangadi Churna).*

No.	*Dravya*	*Rasa*	*Guna*	*Virya*	*Vipaka*	*Doshaghnata*
1	***Vidanga***	*Katu*	*Laghu, Ruksha, Tikshna*	*Ushna*	*Katu*	*Kapha-vata hara*
2	***Nagara***	*Katu*	*Laghu, Ruksha, Tikshna*	*Ushna*	*Madhura*	*Vata-kapha hara*
3	***Yavakshara***	*Katu, Lavana*	*Laghu, Snigdha, Sukshma, Tikshna*	*Ushna*	*Katu*	*Kapha-vata Shamaka*
4	***Kalalauha***	*Tikta*	*Ruksha*	*Sheeta*	*Madhura*	*Tridoshahara*
5	***Yava***	*Kashaya, Madhura*	*Ruksha, Laghu, Mrudu*	*Sheeta*	*Katu*	*Kapha-Pittahara*
6	***Amalaki***	*Amla, kashaya, katu, Tikta,*	*Guru, Ruksha, Sheeta*	*Sheeta*	*Madhura*	*Tridoshahara*

		Madhura				
	Triphala	*Madhura, Kashaya*	*Laghu, Ruksha, Ushana*	*Ushana*	*Katu*	*KaphaPitthara*
A	***Haritaki***	*Kashaya, Tikata, Madhura, Katu, Amala*	*Laghu, Ruksha, Ushana*	*Ushana*	*Katu*	*Tridoshahara (specialy Vatahara)*
B	***Vibhitaki***	*Kashaya*	*Laghu, Ruksha, Ushna*	*Ushana*	*Katu*	*Tridoshahara (specialy Kaphahara)*
C	***Amalaki***	*Amla, Kashay Katu, Tikta, Madhura*	*Guru, Ruksha, Sheeta*	*Sheeta*	*Madhura*	*Tridoshhara (specialy Pittahara)*

Above Pharmecodynamic Study of *Vidangadi Ghana Vati* reveals that it have dominance of *Kashaya, Katu & Tikta Rasa, Ruksha, Laghu,Tikshna Guna; Ushna Virya; Katu Vipaka* & *Tridoshhara* specially *Kapha-vata hara Karma* are present in Maximum *Dravya.* These drugs have *Medoghna Prabhava* there by pacifying the *doshas* & there by relieves the symptoms of sthoulya.

Most of the contents of *Vidangadi Ghanavati* contain *Katu, Tikta, kashaya Rasa.* Because intake of *Madura, Amla, Lavana Rasa* increase *Medodhatu. Katu, Tikta, Kashaya Rasa is* opposite of *Kapha, Ama,* and *Medodhatu*. So *Katu, Tikta and Kashaya* rasa reduces the *Kapha, Ama, Medodhatu*. and *Laghu, Ruksha, Tikshnaguna, Ushnavirya, Katu Vipaka* cause the *Vilayana* of *Medodhatu*. so *Medoavarana* removed It may cause the *vatanulomana* and *Tikshnagni* comes in normalcy(*samagni*) because the *Avritavata* was causing the stimulation of *Agni*. and hence maintains normal appetite but reduces excessive hunger with proper digestion of food. Where as *Katu, Tikta, Kashaya Rasa* have *Deepana, Pachana, Kaphaghna, Lekhana, Amapachana etc*, properties. Due to their *Deepana Karma* it helped in *Jatharagni Deepana* and also *Dhatvagni Deepana*. With *Pachana Karma* it helped in *Ama Pachana* which is main cause in the *Samprapti* hence with *Deepana* and *Pachana Karma* it helped in *Samprapti Vighatana*. It reduces exsesive *Medo Dhatu* from body by having *Medokshaya* and *Kaphakshaya* properties.

Predominant Rasas of the formulation have *Kaphaghna* properties, *Kapha* is one of the main *Dosha* in the *Samprapti* of *Sthoulya*, so with *Kaphaghna* property it again helped in *Samprapti Vighatana* of *Sthoulya*.

Maximum contents of *Vidangadi Ghanavati* contain *Ruksha, Laghu and Tikshna Guna. Ruksha Guna* is known for its *Dhatu Shoshaka* and *Kapha Shamaka* Properties by its

Rukshana & Lekhana Karma, Rukshna and Tikshna guna specially works on *Medo dhatu medodhatu* which has *snighdha* and *mridu guna.* where as *Laghu Guna* is *Kaphashamaka & Dhatuhasakaraka, Krishtakaraka* by its *Laghana Karma*. Due to their *Rukshana Lekhana* and *Langhana* properties they results in reduction of exsesive *Medo Dhatu* from body by having *Medokshaya* and *kapha Kshaya* properties which again helped in *Samprapti Vighatana* of *Sthaulya.*

Maximum contents of *Vidangadi Ghanavati* have *Katu Vipaka* which is responsible for *Ama Pachana* and *Srotoshodhana* by enhancing *Jatharagni* and *Dhatvagni.* It helps in *Samprapti Vighatana* of *Sthaulya.*

Ushna Virya of ingredients helps in *vilayana* of *medodhatu* in the body and digests *Ama* by enhancing *Medo Dhatwagni.* Digestion of *Ama* clears the obstruction of *Rasavaha Srotasa* and *Medovaha Srotasa* which results in *Vata Shamana* too. This again helps in *Samprapti Vighatana* of *Sthoulya.*

CONCLUSION

The data obtained after the treatment was statistically computed, and it was found that the results were statistically significant in both groups. While comparing the results, the patients of group -A have shown better results as compared to group -B. This showed that *Lekhana Basti(Triphala Vidangadi)* proved more significant(beneficial) for the patients then *Vidangadi Ghanavati +Triphala Quatha(*oral medicine*).*

Hence, it can be concluded that the *Sthoulya* can be better managed by administration of *Lekhana Basti.*

The *Lekhana Basti* and *Vidangadi Ghana Vati* caused improvement on parameters such as *Daurbalya, Javoparodha, Atikshudha*, etc. The reduction in the weight, BMI, etc. improve the quality of life, gives the feel good to the individual, and decrease the risk of complication.

No side effects were reported by the patients during the treatment and the follow-up period.

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