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# Clinical study on *Sandhigata Vata* w.r.s. to Osteoarthritis and its management by comparing the efficacy of *Samananga Sneha* and *Samananga Sneha* with *Shadanga Guggulu*

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## ABSTRACT

*Sandhigata Vata* is a disease seen commonly both in developing and developed countries. The disease causes mild, moderate or severe degree of morbidity and rarely mortality. The occurrence of problems is increasingly prevalent now a day due to change in lifestyle, food habits and social and cultural changes as well as travelling. *Sandhishula*, *Sandhishotha*, *Sandhigraha* and *Atopa* are the important clinical features of *Sandhigata Vata*. According to WHO, Osteoarthritis is the 2<sup>nd</sup> commonest problem in the world population i.e. 30%. The major risk factors associated with Kneejoint Osteoarthritis are Age, female sex, obesity, occupational Knee bending. Osteoarthritis is the most common articular disorder that begins asymptotically and is extremely common by age 70. Almost all people by the age 40 have some pathologic change in weight bearing joints. 25% females and 16% males have symptomatic OA. To study the efficacy of *Shamananga Sneha* in *Sandhigata Vata* w.s.r. to Osteoarthritis knee. To compare (study) the efficacy of *Shamananga Sneha* with *Shadanga Guggulu* in *Janu Sandhigata Vata*. To compare the results of the two clinical groups. The study was comparative trial and 30 patients with *Janu Sandhigata Vata*. All the patients were randomly assigned into two groups namely A and B. Group A receive *Shamananga Sneha* (*Guggulu Tiktaka Ghrita*) for 30 days, and Group B receive *Shamananga Sneha* (*Guggulu Tiktaka Ghrita*) along with *Shadanga Guggulu* for 30 days. The patients were clinically evaluated and observations were recorded as in the case performa. *Shamananga Sneha* (*Guggulu Tiktaka Ghrita*) along with *Shadanga Guggulu* i.e. group B was more beneficial in relieving the symptoms than *Shamananga Sneha* i.e. group A (*Guggulu Tiktaka Ghrita*).

**Key words:** *Janu Sandhigata Vata*, *Guggulu Tiktaka Ghrita*, *Shadanga Guggulu*.

## INTRODUCTION

Osteoarthritis is a degenerative joint disorder characterized by breakdown of joint cartilage.

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Osteoarthritis or Degenerative Joint Disease (DJD) may first appear without symptoms between 20 to 30 years of age. The symptoms, such as pain and inflammation will be noticed in the middle age. Till the age of 55 it occurs equally in both sexes; after 55 the incidence is higher in women. It is estimated that approximately 4 out of 100 people are affected by this disease. The incidence of osteoarthritis in India is as high as 12%. According to WHO Osteoarthritis is the 2<sup>nd</sup> commonest problem in the world population i.e. 30%. The major risk factors associated with Knee joint are Age, female sex, obesity, occupational Knee bending. This makes an important cause of disability. Osteoarthritis, the most common articular disorder begins asymptotically in the 2<sup>nd</sup> and 3<sup>rd</sup> decades and is extremely common by the age of 70. Almost all

persons by age 40 have some pathologic change in weight bearing joint. 25% females and 16% males have symptomatic Osteoarthritis.

In the conventional system of medicine, administration of pain killers like NSAID's (non steroidal anti inflammatory drugs), Narcotics, Corticosteroids, intra articular injections etc. which gives temporary relief and lastly surgery (Knee replacement), which are quite expensive, need hospitalization and also causes adverse effects constitute usual line of treatment. Where as such type of conditions can be better treatable by the management mentioned in Ayurvedic classics.

Acharya Charaka was the first person who described the disease separately as "Sandhigata Anila".<sup>[1]</sup> General line of treatment for Vata Vyadhis has been described by Acharya Charaka i.e. repeated use of Snehana and Swedana, Basti and Mrudu Virechana. Acharya Charaka has also been recommended drugs comprising of Tikta Dravya and Ghrita as treatment for Asthyashritha Vata<sup>[2]</sup> and Sandhigata Vata in Charaka Samhita. Asthi and Majja are chief components of Sandhi which are affected. However, Guggulu is a Sroto-Shodhaka and proved to have both anti-inflammatory and anti-arthritic properties by various research workers.<sup>[3]</sup> Here one group is treated with Guggulutiktaka Ghrita. In another group Guggulutiktaka Ghrita with Shadanga Guggulu. Because Guggulu has got Vatashamaka properties.

## AIMS AND OBJECTIVES

1. To study the efficacy of Shamananga Sneha in Sandhigata Vata w.s.r. to Osteoarthritis knee.
2. To compare (study) the efficacy of Shamananga Sneha with Shadanga Guggulu in Janu Sandhigata Vata.
3. To compare the results of the two clinical groups.

## MATERIAL AND METHODS

Patients, suffering from Osteoarthritis, were selected from O.P.D and I.P.D of RAMC College, Ramagondhanahalli, Yelahanka, Bengaluru.

## Inclusion Criteria

Patients presenting with classical signs and symptoms of Janu Sandhigata Vata (Osteoarthritis knee joint) like;

- Patients with Pratyatmalaksana of Sandhigata Vata.<sup>[4]</sup>
- Patients age group 40 to 70 years irrespective of sex, religion and socioeconomic status will be taken.
- Patients who are fit for Shamanagasneha and are willing to sign the informed consent will be included in the study.

## Exclusion Criteria

- Patients having systemic disorder which might interfere with the treatment.
- Patients who are not fit for the Shamanagasneha.
- Patients with infective Neoplastic and traumatic condition of knee joint.

## Grouping

**Group A:** Patient given Guggulutiktaka Ghrita 10 ml twice a day for 30 days.

**Group B:** Patient given Guggulutiktaka Ghrita 10 ml + Shadanga Guggulu 3gms twice a day for 30 days.

## OBSERVATIONS

Total 30 patients were registered (group A-15 & group B-15), amongst them all patients were completed the treatment, no drop out.

**Table 1: Status wise distribution of 30 patients of Sandhigata Vata.**

Status	Number of patients		Total	%
	Group A	Group B		
Completed	15	15	30	100
Drop out	0	0	0	0
Total	15	15	30	100

In this study, maximum 43.4% patients were found in 51-10 years of age group, 66.7% females, 50% were muslims, 33.3% were manual labor and house wives each, 40% were middle class and lower class each, 90% were married, 50% were sub urban population, 36.7% subjects were high school educated, 50 % were Vata Pitta Prakriti, 70 % were mixed diet, 66.7% were having no habits, 66.7% were having *Madhayama Ahara - Abhyavaharana Shakti*, 63.3% were having

*Madhyama Ahara - Jarana Shakti*, 50% were having *Samagni*, 53.3% were having *Madhyama Kostha*, 56.7% were having *Madhyama Vyayama Shakti*, 63.3% were having sound sleep, over 70% were having 0-2 years of Chronicity.

Over 56.7% were having normal weight, almost all the patients 100% were having both the joints involvement.

**Table 2: Showing Individual study of the Subjective and Objective parameters in Group A.**

Parameter	Mean			%	S. D	S. E	Df	t-value	p-value	Remarks
<b>Sandhi Shoola</b>	0 <sup>th</sup>	3			0.93	0.24	14			
	15 <sup>th</sup>	2.93	0.07	2.33	0.80	0.21		0.5641	>0.05	NS
	30 <sup>th</sup>	1.4	1.6	53.33	1.12	0.29		6.807	<0.001	HS
<b>Sandhi Graha</b>	0 <sup>th</sup>	2.6			1.06	0.27	14			
	15 <sup>th</sup>	2.27	0.33	12.69	0.96	0.25		2.091	>0.05	NS
	30 <sup>th</sup>	1	1.6	61.53	1	0.26		6.807	<0.001	HS
<b>Sandhi Shotha</b>	0 <sup>th</sup>	0.8			1.15	0.3	14			
	15 <sup>th</sup>	0.6	0.2	25	0.83	0.21		1.8708	>0.05	NS
	30 <sup>th</sup>	0.33	0.47	58.75	0.49	0.13		2.4318	<0.05	S
<b>Sandhi Sphutana</b>	0 <sup>th</sup>	1.33			0.49	0.13	14			
	15 <sup>th</sup>	1.27	0.07	4.511	0.59	0.15		0.5641	>0.05	NS
	30 <sup>th</sup>	1.13	0.2	15.03	0.64	0.17		1.3817	>0.05	NS
<b>ROM</b>	0 <sup>th</sup>	1.47			0.64	0.17	14			
	15 <sup>th</sup>	1.2	0.27	18.36	0.68	0.17		2.256	<0.05	S
	30 <sup>th</sup>	0.4	1.07	72.78	0.51	0.13		6.959	<0.001	HS

**Table 3: Showing Individual study of the Subjective and Objective parameters in Group B.**

Parameter	Mean			%	S. D	S. E	Df	t-value	p-value	Remarks
<b>Sandhi Shoola</b>	0 <sup>th</sup>	2.93			0.96	0.25	14			
	15 <sup>th</sup>	2.73	0.20	6.825	0.80	0.21		1.8708	>0.05	NS
	30 <sup>th</sup>	0.93	2	68.25	0.7	0.18		11.832	<0.001	HS
<b>Sandhi Graha</b>	0 <sup>th</sup>	2.47			1.25	0.32	14			

	15 <sup>th</sup>	1.80	0.67	27.12	1.08	0.28		4.1833	<0.001	HS
	30 <sup>th</sup>	0.47	2	80.97	0.64	0.17		7.746	<0.001	HS
<b>Sandhi Shotha</b>	0 <sup>th</sup>	0.47			0.64	0.17	14			
	15 <sup>th</sup>	0.27	0.20	42.55	0.59	0.15		1.8708	>0.05	NS
	30 <sup>th</sup>	0.07	0.40	85.10	0.26	0.07		2.4495	<0.05	S
<b>Sandhi Sphutana</b>	0 <sup>th</sup>	1.40			0.51	0.13	14			
	15 <sup>th</sup>	1.33	0.07	5	0.62	0.16		1	>0.05	NS
	30 <sup>th</sup>	1.20	0.20	14.28	0.68	0.17		1.8708	>0.05	NS
<b>ROM</b>	0 <sup>th</sup>	1.53			0.64	0.17	14			
	15 <sup>th</sup>	0.93	0.6	39.21	0.7	0.18		4.582	<0.001	HS
	30 <sup>th</sup>	0.27	1.26	82.35	0.46	0.12		8.264	<0.001	HS

Table 4: Comparative effect of treatment between the group A & B (subjective and objective parameter)

Parameter	Assessment	Group	Mean	S.D	S.E	PSE	t-value	p-value	Remarks
<b>Sandhi Shoola</b>	15 <sup>th</sup>	A	2.93	0.80	0.21	0.292	0.6857	>0.05	NS
		B	2.73	0.80	0.21				
	30 <sup>th</sup>	A	1.40	1.12	0.29	0.342	1.3653	>0.05	NS
		B	0.93	0.70	0.18				
<b>Sandhi Graha</b>	15 <sup>th</sup>	A	2.27	0.96	0.25	0.374	1.2486	>0.05	NS
		B	1.80	1.08	0.28				
	30 <sup>th</sup>	A	1	1	0.26	0.307	1.7398	>0.05	NS
		B	0.47	0.64	0.17				
<b>Sandhi Shotha</b>	15 <sup>th</sup>	A	0.60	0.83	0.21	0.263	1.2671	>0.05	NS
		B	0.27	0.59	0.15				
	30 <sup>th</sup>	A	0.40	0.63	0.16	0.176	1.8898	>0.05	NS
		B	0.07	0.26	0.07				
<b>Sandhi Sphutana</b>	15 <sup>th</sup>	A	1.27	0.59	0.15	0.221	0.3015	>0.05	NS
		B	1.33	0.62	0.16				
	30 <sup>th</sup>	A	1.13	0.64	0.17	0.240	0.2774	>0.05	NS
		B	1.20	0.68	0.17				
<b>ROM</b>	15 <sup>th</sup>	A	1.2	0.68	0.17	0.252	1.0583	>0.05	NS

		B	0.93	0.70	0.18				
	30 <sup>th</sup>	A	0.40	0.51	0.13	0.176	0.7559	>0.05	NS
		B	0.27	0.46	0.12				

Comparative analysis of t-test for *Sandhi Shoola* was 53.3% improvement in Group A and 68.25% improvement in Group B, *Sandhi Graha* was 61.53% improvement in Group A and 80.97% improvement in Group B, *Sandhi Shotha* was 58.75% improvement in Group A and 85.10% improvement in Group B, *Sandhi Sphutana* was 15.03% improvement in Group A, 14.28% improvement in Group B, Range of Movements was 72.78% improvement in Group A and 82.35% improvement in Group B respectively.

**Table 5: Total effect of therapy.**

Grading	Group A		Group B	
	No of Patients	%	No of Patients	%
Complete Remission $\geq$ 75%	4	26.66	5	33.33
Marked Improvement $\geq$ 50%	6	40	9	60
Moderate Improvement $\geq$ 25%	5	33.33	1	6.6
No Improvement $\geq$ 0%	0	0	0	0

Comparative analysis of the overall effect of the treatments in both the groups was done statistically with unpaired t test. In the clinical trial, the result obtained regarding the overall assessment showed better result in Group B than Group A. In Group A among 15 subjects there was complete remission in 4 subjects (26.66%), marked improvement in 6 subjects (40%), moderate improvement in 5 subjects (33.33%). In Group B among 15 subjects 5 subjects (33.33%) reported complete remission, 9 subjects (60%) reported marked improvement, 1 subjects (6.6%) subjects reported moderate improvement. In case of

*Sandhigata Vata* Group A overall result is 52.28% and Group B overall result is 66.19%.

## DISCUSSION

In this study 43.4% patients were found in 51-60 years of age group. *Sandhigata Vata* will be more in aged persons. According to sex 66.7% were female patients, which indicates that *Sandhigata Vata* is more common in female and here the lack of female hormone (oestrogen) in the pre-menopausal period also play an important role. Modern text also reflect the same type of prevalence, Osteoarthritis or Degenerative Joint Disease (DJD) may first appear without symptoms between 20 and 30 years of age.<sup>[5]</sup> The symptoms, such as pain and inflammation, appear in middle age. Till the age of 55 it occurs equally in both sexes; after 55 the incidence is higher in women.<sup>[6]</sup>

According to the different *Nidana* of the disease *Katu Rasa Atisevana* (53.3%), *Ati Rooksha Bhojana* (23.3%), *Ratri Jagarana* (63.3%). These *Nidana* plays an important role in aggravation of the *Vata Dosh* and thus causes *Sandhigata Vata*. In case of Chronicity 70% patients were having 0-2 years of chronicity.

Among the risk factors patients of female sex 66.7% and 73.3% were having *Ati Chinta* was found prevalent.

Among the chief complaints *Sandhi Shoola* is present in all patients. In *Sandhigata Vata* there will be aggravation of *Vata Dosh* which is responsible for any kind of *Shula*. *Sandhi Graha*, *Sandhi Shotha*, *Sandhi Sphutana* was found more in the patients, which occurs due to aggravation of *Vata Dosh* and *Kapha Kshaya*.

*Guggulu Tiktaka Ghrita* along with *Shadanga Guggulu* i.e. Group B has showed better relief in the disease *Sandhigata Vata* in the present study.

In both the groups (A & B) i.e. 33.33% & 26.66% patients achieved complete remission, while 40% & 60% patients found in marked improvement and 33.33% & 3.3% were having moderate improvement. No patients found unchanged in both the groups.

#### Probable mode of action of Guggulu Tiktaka Ghrita

*Sandhigata Vata* is *Madhyama Roga Margagata Vatika* disorders in which vitiated *Vata* gets lodged in *Sandhi*. Hence to treat *Sandhigata Vata* drugs acting on both *Vata* and *Asthi* should be selected. According to Charaka, in *Asthi Dhatu Dushti* the treatment should be given *Tikta Dravya Ghrita* and *Kshira*. In *Guggulu Tiktaka Ghrita* predominance of *Tikta Rasa* is there. *Tikta Rasa* has *Vayu* and *Akasha Mahabhuta* in dominance. Hence it has got affinity towards the body elements like *Asthi* having *Vayu* and *Akasha Mahabhuta* in dominance. Though, *Tikta Rasa* aggravates *Vayu* which may enhance the pathogenic process of *Sandhigata Vata* but, the main principle of Ayurvedic treatment is “*Sthanam Jayate Purvam*”. The main site of *Sandhigata Vata* is *Sandhi* which is the site of *Shleshaka Kapha*. Most of ingredients of *Guggulu Tiktaka Ghrita* have *Tikta Rasa*, *Ushna Virya* and *Madhura* and *Katu Vipaka*. The *Tikta Rasa* increase the *Dhatvagni* (metabolic stage). As *Dhatvagni* increase, nutrition of all the *Dhatu*s will be increased. As a result *Asthi Dhatu*, *Majja Dhatu* may get stable and *Asthi Dhatu* and *Majja Dhatu Kshaya* will be decreased. So degeneration in the *Asthi Dhatu* may not occur rapidly. It can be said, it slows down the degeneration processes. *Tikta Rasa* has got *Deepana*, *Pachana* and *Rochana* properties. So it helps in the improvement of the general condition of health and thus strengthen the whole body as well as joints.<sup>[7]</sup> On other hand *Tikta Rasa* possess *Lekhana* property, so it helps in the weight reduction of the patients and helps in the management of Osteoarthritis.<sup>[8]</sup> *Tikta Rasa* is also has got *Jwaraghna* and *Daha Prashamana* properties that it may act as anti-inflammatory agent and can reduce the pain and swelling of the joints. *Ghrita* is *Vata-Pittashamaka*, *Balya*, *Agnivardhaka*, *Madhura*, *Saumya*, *Sheetavirya*, *Shula*, *Jwarahara*, *Vrishya* and

*Vayasthapaka* also.<sup>[9]</sup> Thus, it pacifies *Vata*, improve the general condition of the body and acts as a rejuvenator of the body. Thus, helps in the *Samprapti Vighatana* of the *Sandhigata Vata*. *Ghrita* is having property like *Yogavahi* which is helpful in increasing bio-availability of other drugs without losing its own property. *Ghrita* also contains vitamin D which plays an important role to utilize calcium and phosphorous in blood and bone building.<sup>[10]</sup>

Due to the *Ushna* property of *Guggulu*, it is one of the major *Vatashamaka Dravya*. Due to its *Ruksha* and *Vishada Guna* it acts as a *Medohara*. Due to its *Katu Rasa* it acts as a *Deepana*. Thus help in the improvement of general condition of the patient. *Purana Guggulu* also acts as a *Rasayana* which may help to prevent the any degenerative change in the body. Pharmacologically *Guggulu* has got the properties of anti-inflammatory, immunomodulatory and anti-lipidaemic action. On the overall effect of the *Panchatikta Ghrita Guggulu*, it has been found that drug is predominant in *Ushna Virya* which helps in pacification of aggravated *Vata* and subside the pain.

#### Probable mode of action of Shadanga Guggulu

*Shadanga Guggulu* contains One part each of *Rasna*, *Guduci*, *Erandamula*, *Devdaru*, *Sunthi* and *Sarvasambhaga* of *Shuddha Guggulu* and *Gritha*, ingredients which have various types of actions in the body. Most of these ingredients are having *Tikta Rasa*, *Ushna Virya* and *Madhura* and *Katu Vipaka*. According to *Sushruta Samhita*, *Guggulu* has pleasant odour, light, subtle, penetrating, hot in potency, pungent/bitter in taste, *Katu Vipaka*, laxative, good for heart unctuous and slimy. When fresh, it is stoutening and aphrodisiac, while old one causes thinning of the body, by its penetration and *Ushna Veerya*. It mitigates *Kapha* and *Vata*, being laxative it eliminates feces and mitigates *Pitta* by its pleasant smell. It relieves bad smell of the abdomen, by its subtleness it kindles digestive fire. *Sandhigata Vata* is a *Madhyama Roga Margagata Vatika* disorders in which vitiated *Vata* gets lodged in *Sandhi*. Hence to treat *Sandhigata Vata* drugs acting on both *Vata* and

*Asthi* should be selected. According to Charaka, in *Asthi Dhatu Dushti* the treatment given should be *Tikta Dravyasadhita Ghrita* and *Kshira*. In *Shadanga Guggulu* predominance of *Tikta Rasa* is there and *Gritha* also there. *Gritha* is having *Vatahara* and *Rasayana* property, prevents further *Dhutuksaya* and nourishes body, It is also having *Deepana* property so maintains *Agni* of the body which keeps body healthy. *Tikta Rasa* is having *Lekhana* property, so it helps in the weight reduction of the patients and helps in the management of Osteoarthritis. *Tikta Rasa* is also having *Jwaraghna* and *Daha Prashamana* properties. Thus it acts as anti inflammatory agent and can reduce the pain and swelling of the joints. *Tikta Rasa* has *Vayu* and *Akasha Mahabhuta* in dominance. Hence it has affinity towards the body elements like *Asthi* having *Vayu* and *Akasha Mahabhuta* in dominance. Due to the *Ushna* property of *Guggulu*, it is one of the major *Vatashamaka Dravya*. Due to its *Ruksha* and *Vishada Guna* it acts as a *Medohara*. Due to its *Katu Rasa* it acts as a *Rasayana* which helps in preventing any degenerative change in the body. Pharmacologically *Guggulu* has the property of antiinflammatory, immunomodulatory and antilipidaemic action. Overall effect of the *Shadanga Guggulu* is that it helps in pacification of aggravated *Vata*.

## CONCLUSION

This study was mainly under taken to have a better understanding of *Samprapti* and *Samprapti Vighatana* of *Sandhigata Vata*. *Janusandhigata Vata* comes under *Vatavyadhi* which is commonly associated with the *Vardhakya* and *Dhatuksaya* is a prominent feature in its manifestation. Overall patients of group B treated with *Guggulutiktaka Ghrita* with *Shadanga Guggulu* showed better response clinically and statistically than patients of group A *Guggulutiktaka Ghrita* in almost all the parameters (Tenderness, *Shoola* during movement, *Ruja*). Overall response is significantly better in patients of Group B (Moderate/Marked response (66.19%) when compared to patients of Group A (52.28%).

Thus the study proves the fundamental principles involved in the *Samprapti* and *Samprapti Vighatana* of *Sandhigata Vata* as mentioned in the classics. The *Samprapti* of *Sandhigata Vata* involves predominantly *Vata Dosha* and the *Dravya* that is *Guggulu Tiktaka Ghrita* and *Shadanga Guggulu* both are more effective in relieving the symptoms. But *Guggulu Tiktaka Ghrita* along with *Shadanga Guggulu* showed the better results in decline the signs and symptoms of *Janusandhigata Vata* rather than the single drug (*Guggulu Tiktaka Ghrita*).

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