

ROLE OF TIKTA KSHEERA BASTI AND ADITYAPAKA GUGGULU IN THE MANAGEMENT OF SANDHIGATAVATA (OSTEOARTHRITIS)

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ABSTRACT

Sandhigataavata is a degenerative disorder in which degeneration of *Asthi Dhatu* (osseous tissue) in the joints occur. *Tikta Ksheera Basti* is used in the treatment of *Sandhigataavata* because according to *Acharya Charaka*, *Ksheera* prepared with *Tikta rasa dravya* are used in *Basti* for the treatment of *Asthigata Rogas*. The study was carried out on 45 clinically diagnosed patients of *Sandhigataavata* with an objective to assess the effect of *Tikta Ksheera Basti* and *Adityapaka Guggulu* in the management of *Sandhigataavata* on various scientific parameters. Results showed that merely *Shamana* therapy in the form of *Adityapaka Guggulu* could not produce significant functional improvement but administration of *Shodhana* therapy in the form of *Tikta Ksheera Basti* produces significant improvement in joint functions. The best results were observed when both the treatment modalities were administered together. From the above trial it can be validated that *Tikta Ksheera Basti* is efficacious in *Asthigata Roga*.

Keywords: *Tikta Ksheera Basti, Adityapaka Guggulu, Sandhigataavata, Osteoarthritis*

INTRODUCTION

Sandhigataavata, a disorder of *Asthi-Majjavaha Srotas* is degenerative in nature where in degeneration of *Asthi Dhatu*(osseous tissue) in the joints occur. Osteoarthritis (OA) or degenerative Joint Disease (DJD) may first appear without symptoms between 20 and 30 years of age. The symptoms, such as pain and inflammation, appear in middle age. So, in *Sandhigataavata* and OA most of symptoms are similar. According to *Acharya Charaka*, *Basti* prepared by *Tikta rasa siddha ksheera* is said to be effective in the treatment of *Asthivaha srotas*. Hence, to check its efficacy present clinical trial was conducted and results showed that merely *Shamana* therapy in the form of *Adityapaka Guggulu* could not produce significant functional improvement but administration of *Shodhana* therapy in the form of *Tikta*

Ksheera Basti produced significant improvement in joint functions. *Adityapaka Guggulu* was given to the patients, as *Adityapaka Guggulu* also having *Vata-shamaka* properties.

OBJECTIVES

To evaluate the individual and combined efficacy of *Tikta Ksheera Basti* and *Adityapaka Guggulu* in the management of *Sandhigataavata*

MATERIALS AND METHODS

Selection of patients:

- 45 patients suffering from *Sandhigataavata* were selected from OPD and IPD wing of P.G. Department of Kayachikitsa, NIA, Jaipur.
- Study type: Interventional.
- Purpose: Treatment.
- Masking: Open label.
- Timing: Prospective

Inclusion criteria:

1. Patients of age group 30yrs to 60yrs of either sex.
2. Patients having signs and symptoms of sandhigatavata (OA).
3. Patients having chronicity of sandhigatavata less than 5yrs.
4. Patients willing to sign the consent form for the clinical trial.

Exclusion criteria:

1. Patients below age 30yrs & above 60yrs of either sex.
2. Patients suffering from paralysis.

3. Patients having infections of spine especially T.B., Brucellosis, pyogenic osteomyelitis, etc.
4. Patients with Rheumatoid arthritis, Gouty arthritis, Septic arthritis etc.
5. Patients having neoplasm of spine and other complicated diseases like CCF, D.M., Malignant HTN, etc.
6. Patients having severe osteoarthritic changes.

Table 1: Grouping

Group	No. of Patients	Treatment modality	Dose	Duration
A	15	<i>Adityapaka Guggulu</i>	1gm twice in day	30days
B	15	<i>Tiktaksheera Basti</i>	250ml	15days
C	15	<i>Adityapaka Guggulu & Tiktaksheera Basti</i>	As above	As above

DRUGS:

Table 2: Contents of Adityapaka Guggulu

Sr.No	Drug Name	Latin Name
1.	<i>Haritaki</i>	<i>Terminalia chebula</i>
2.	<i>Bibhitaki</i>	<i>Terminalia belerica</i>
3.	<i>Amalaki</i>	<i>Emblica officinalis</i>
4.	<i>Pippali</i>	<i>Piper longa</i>
5.	<i>Twaka</i>	<i>Cinnamomum zeylanicum</i>
6.	<i>Ela</i>	<i>Elateria cardamomum</i>
7.	<i>Guggulu</i>	<i>Commiphora guggulu</i>
8.	<i>Bilwa Choorna</i>	<i>Aegle marmelos</i>
9.	<i>Shyanaka</i>	<i>Oroxylum indicum</i>
10.	<i>Gambhari</i>	<i>Gmelina arborea</i>
11.	<i>Patala</i>	<i>Stereospermum suaveolens</i>
12.	<i>Agnimantha</i>	<i>Premna intigerima</i>
13.	<i>Shalaparni</i>	<i>Desmodium gangeticum</i>
14.	<i>Prishnaparni</i>	<i>Uraria picta</i>
15.	<i>Brihati</i>	<i>Solanum indicum</i>
17.	<i>Kantakari</i>	<i>Solanum xanthocarpum</i>
18.	<i>Gokshura</i>	<i>Tribulus terrestris</i>

Table 3: Constituent of Tikta Ksheera Basti

Sr.No	Drug Name	Latin Name
1.	<i>Guduchi</i>	<i>Tinospora cardifolia</i>
2.	<i>Nimb</i>	<i>Azadirakta indica</i>
3.	<i>Vasa</i>	<i>Adhathoda vasica</i>
4.	<i>Kantakari</i>	<i>Solanum Surrattense</i>
5.	<i>Patol</i>	<i>Trichosanthes dioica</i>
6.	<i>Ksheera</i>	Milk
7.	<i>Goghrita</i>	Ghee
8.	<i>Madhu</i>	Honey
9.	<i>Saidhava</i>	Salt

Dose and Duration:

1) *Adityapaka Guggulu* 2 tablets twice daily for 30 days (each tablet is 500mg)

2) *Basti* – (in *Karma basti* form)

Anuvasana with *Dashamoola Taila* 50 ml after meal and *Niruha* with *Tikta ksheera basti* 250 ml before meal

The patients were observed during the treatment and then on the 15 days of follow up changes in subjective signs & symptoms assessed by suitable scoring method and also objective parameters using appropriate clinical tools details of which are given below:

1. Subjective Parameters:

1. For the assessment of *Sandhishula* (Pain in joints) and *Akunchana Prasarana Vedana* (Pain during movements) VAS (Visual Analogue Scale) was used.

2. For assessment of *Sandhishotha* (Swelling), *Sandhigraha* (Stiffness), *Sandhisphutana* (Crepitus), *Sparshashayata* (Tenderness) Scoring pattern developed by Dr. D. S. Mishra was adopted.

2. Objective Parameters:

1. Hb%, TLC, DLC, ESR.
2. Sr. Calcium, RBSL.
3. Sr. Creatinine, Blood Urea
4. RA Factor, ASLO titre, Sr. Uric Acid, CRP test

In this study, TLC DCL, RA Factor, ASLO titre, Sr. Uric Acid, CRP test were used to exclude the other conditions which mimic the OA symptoms like RA, Gouty Arthritis and Infective arthritis. While RFT, Hb%, BSL (Random) were used for safety study of trial drug of present study.

OBSERVATIONS AND RESULTS

Relative prevalence of the incidence of *Sandhigatavata* is in middle aged persons of *Vata-pittaj Prakriti* with *Rajas* temperament and females dominated the series. Middle class married persons were found to suffer more. The disease runs chronic course. It was observed that maximum number for patients in trial were engaged in ambulatory type of work. *Sandhigatavata* was found more in Vegetarian dietary subjects and in *Hindu* families. Family history was present only in 28.89% of cases, Primary School people were suffering mostly from disease while 66.67% patients were having *Madhyama Kosta*. Several etiological factors as described in *Ayurveda* and Modern medicine for initiation of *Sandhigatavata* were found to be responsible as precipitating factors in current clinical study. All the results calculated with the help of InStat Graph Pad 3.

Table 4: Change in Subjective Parameters (Wilcoxon matched paired single ranked test)

Variables	Group	Mean		Mean Diff.	% Relief	SD±	SE±	p	S
		BT	AT						
Sandhishhula (Pain in joints)	A	3.3	1.1	2.2	66.66	0.91	0.29	<0.001	HS
	B	3.7	0.8	2.9	78.37	1.66	0.52	<0.001	HS
	C	4.1	0.4	3.7	99.24	1.49	0.47	<0.001	HS
Sandhishotha (Swelling)	A	1.66	0.4	1.26	76	0.83	0.21	<0.001	HS
	B	1.66	0.2	1.46	88	0.91	0.23	<0.001	HS
	C	1.66	0.13	1.53	92	0.83	0.21	<0.001	HS
Sparshasahatva (Tenderness)	A	1.86	0.46	1.4	75	0.50	0.13	<0.001	HS
	B	1.8	0.26	1.53	85.18	0.63	0.16	<0.001	HS
	C	1.8	0.2	1.6	88.88	0.63	0.16	<0.001	HS
Sandhisputana (Crepitus)	A	1.26	0.06	1.2	94.73	0.56	0.14	<0.001	HS
	B	1.26	0.06	1.2	94.73	0.56	0.14	<0.001	HS
	C	1.26	0	1.26	100	0.45	0.11	<0.001	HS
Sandhigraha (Stiffness)	A	2.53	0.86	1.66	65.78	0.61	0.15	<0.001	HS
	B	2.73	0.73	2	73.17	0.75	0.19	<0.001	HS
	C	2.73	0.6	2.13	78.049	0.51	0.13	<0.001	HS
Akunchana Prasarana Vedana	A	4.2	1.8	2.4	68.42	1.57	0.49	<0.001	HS
	B	5	1.3	3.7	74	1.70	0.53	<0.001	HS
	C	5.8	0.8	5	86.21	1.49	0.47	<0.001	HS

(HS:Highly Significant, S:Significant,NS:Nonsignificant)

★ From above table, the p value of all group is <0.001 which shows statistically highly significant improvement in all the parameters and in all groups.

Table 5: Showing Inter-group comparison Kruskal-Wallis Test (ANOVA)

Variable	Group	Mean Diff.	SD±	SE±	p	S
Sandhishhula (Pain in joints)	A	2.2	0.91	0.29	>0.05	NS
	B	2.9	1.66	0.52		
	C	3.7	1.49	0.47		
Sandhishotha (Swelling)	A	1.26	0.83	0.21	>0.05	NS
	B	1.46	0.91	0.23		
	C	1.53	0.83	0.21		
Sparshasahatva (Tenderness)	A	1.4	0.50	0.1309	>0.05	NS
	B	1.5	0.63	0.16		
	C	1.6	0.63	0.16		
Sandhisputana (Crepitus)	A	1.2	0.56	0.14	>0.05	NS
	B	1.2	0.56	0.14		
	C	1.26	0.45	0.11		
Sandhigraha (Stiffness)	A	1.66	0.61	0.15	>0.05	NS
	B	2	0.75	0.19		
	C	2.13	0.51	0.13		
Akunchana Prasarana Vedana	A	2.4	1.57	0.49	>0.05	NS
	B	3.7	1.70	0.53		
	C	5	1.49	0.47		

(HS:Highly Significant, S:Significant,NS:Nonsignificant)

The p value was >0.05 which was statistically not significant which shows that there was no statistical difference in efficacy of three treatments on subjective parameters. There were no significant changes found in the Hematological and Radiological Parameters.

DISCUSSION

Ayurvedic description of *Sandhigatavata* closely resembles with Osteoarthritis of modern medicine. *Basti chikitsa* is considered to be the half the treatment for *Vata* dominated diseases. *Basti Vataharanam Shreshtha*. *Vata Dosha* is predominantly present in *Asthi Dhatu* and joints. *Tikta Rasa* has tendency to go towards *Asthidhatu* after assimilation in the body due to dominance of *Akasha* and *Vayu Mahabhuta*. In the present context *Ksheera* is used as *Basti dravya* which is prepared with *Tiktarasa dravyas* which are effective in *Asthigata Rogas*. *Ksheera* has *Snigdha* and *Madhura* properties hence it does *Vata Dosha Shamana* in the body. Considering all these factors it was decided to evaluate the efficacy of *Tiktaksheera Basti* in *Sandhigatavata* and also compare the effect of *Adityapaka guggulu* used alone and in combination with *Tiktaksheera Basti*.

Probable mode of action of *tikta ksheera basti*:

Vata Dosha is predominantly present in *Asthi Dhatu* and joints by *Ashraya-ashrayi* phenomenon. *Ksheera* used as *Basti dravyas* in the present clinical trial was prepared with *Tikta rasa* dominant drugs which are said to be effective in *Asthigata* and *Majjagata rogas*. *Ksheera* has *Snigdha* and *Madhura* properties which may further do *Shamana* of *Vata Dosha*. *Tikta rasa* has tendency to go towards *Asthi Dhatu* after assimilation in body due to *Akasha* and *Vayu Mahabhuta*. The main

site of pathology in *Sandhigatavata* is various joints and bones itself. It was presumed that *Ksheera* and *Tikta dravyas* when used together in the form of *Ksheera Basti* will act on the site of lesion in *Sandhigatavata* i.e. joints and will be in a position to breakdown chain of reactions occurring in the form of *Samprapti* at one hand and arrest the progress of the diseases on the other hand in addition to producing subjective improvement in patients.

Tikta ksheera Basti may also manifest its pharmacological actions in one or all the ways as mentioned below. These factors may act individually or in collaboration with each other to accomplish the task of *Basti* in the form of *Tikta ksheera Basti* and there by producing desired effects in the form of:

1. Arresting progress of the disease.
2. Delaying the degenerative changes in *Sandhigatavata*.

Tiktaksheera Basti dravyas when introduced through rectum reach up to the level of *Nabhi, Kati, Parshva* and *Udara Pradesha (Pakwashaya)* and produces cleansing effect. Autonomic nervous system controls and regulates various organs and viscera of the body. It is possible that *Tikta ksheera Basti* activates ANS and thus performs the act of excretion of vitiated *Doshas, Malas* and flatus.

It is possible that *Basti dravya* may produce local effect by irritating and stimulating the nerve endings of colon and rectum. It is expected that this activation of nerve endings will initiate the reflex of expelling vitiated *Dosha* from the rectum without absorption of the *Basti dravyas*.

It is expected that *Basti dravyas* may act by its *veerya* which spreads throughout the body with the help of *Apana, Udana* and *Vyana Vayu* when administered through rectum. *Basti dravyas*

contains *Madhu*, *Saindhava* and *Ghrita*. *Madhu* contains sucrose and many more enzymes. Honey is an aqueous solution of glucose, fructose, sucrose, formic acid and other constituents. *Saindhava* contains NaCl and other ions which fulfils the requirement for generating action potentially by which ion exchange takes place through the semi permeable membrane of the intestine. This exchange of ions may help in taking out vitiated *Doshas* mainly *Vayu* from the body. *Ghrita* used in *Basti dravyas* is basically *Snigdha guna pradhana* which can control vitiated *Vata Dosha* due to its properties.

Probable mode of action of adityapaka guggulu:

The early pathology of *Sandhigatavata* starts with the vitiation of *Vata*. It may be due to *Dhatukshaya* or *Avarana* or by direct uses of *Vata Vardhaka Ahara* and *Vihara*. The contents of *Adityapaka Guggulu* includes *Triphala*, *Twak*, *Ela*, *Pippali*, *Guggulu* and *Dashamoola kwatha* as *Bhavana dravya*. Most of the drugs have following properties-*VataKapha Shamaka*, *Tridoaha shamaka*, *Shothaghna*, *Dipana*, *Pachana*, *Vedanasthapaka* and *Shoolaprashamana*. A compound preparation like *Adityapaka guggulu* having these properties is likely to check the etiopathogenesis of the disease *Sandhigatavata* and arrest its progress.

Adityapaka guggulu has specific properties to pacify the vitiated *Vata Dosha* in *Asthisandhis* leading to arrest of pathogenesis and progress of the *Sandhigatavata* (OA). It was observed that *Adityapaka guggulu* is effective only after taking for long duration without any complications of *Sandhigatavata* cases. Chronic cases with long standing duration where several joints are involved and radi-

ologically presented with the Osteophytes, *Adityapaka guggulu* was least effective.

CONCLUSION

It can concluded that *Adityapaka Guggulu* along with *Tikta ksheera Basti* may be the best treatment modality in the management of *Sandhigatavata* and as observed in the present trial it is cost effective and free from untoward effects.

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Source of support: Nil
Conflict of interest: None Declared