

# Role of Adityapaka Guggulu and Tiktaksheera Basti in the Management of Sandhigatavata with Special Reference to Osteoarthritis

Umakant Roy<sup>1\*</sup>, Rakesh Mishra<sup>2</sup>, S. C. Sarvi<sup>3</sup>, S. Sharda<sup>4</sup>, Mukesh Kumar Tiwary<sup>5</sup>

<sup>1</sup>Research Scholar, Department of Kaya Chikitsa, RGES Ayurved Medical College, Ron, India

<sup>2</sup>Research Scholar, Department of Panchakarma, RGES Ayurved Medical College, Ron, India

<sup>3,4</sup>Professor, Department of Kaya Chikitsa, RGES Ayurved Medical College, Ron, India

<sup>5</sup>Assistant Professor, Department of Kriya Sharir, SSPS Ayurved Medical College, Mirzapur, India

**Abstract:** Sandhigatavata 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 Sandhigatavata 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 Sandhigatavata with an objective to assess the effect of Tikta Ksheera Basti and Adityapaka Guggulu in the management of Sandhigatavata 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:** Adityapaka Guggulu, Sandhigatavata, Osteoarthritis, Tikta Ksheera Basti.

## 1. Introduction

Ayurveda is the science of life which covers all the aspects of life, not only the preventive as well as therapeutic part. The ultimate aim of any science is well being of the creature living in this universe. The approach of Ayurvedic therapies whether it is preventive or curative is the main specialty as it is the complete form of treatment which emphasizes the complete cure by improving the diet and dietetics of the individual and providing the ultimate goal of health i.e. why it is called the holistic science. Sandhigatavata is described under Vatavyadhi in all the Samhita and Sangraha Grantha. In Vriddhavastha, all Dhatus undergo Kshaya, thus leading to Vataprakopa and making individual prone to many diseases. Among them Sandhigatavata stands top in the list. Acharya Charaka was the first person who described the disease separately named "Sandhigata Anila" [1], both as not included under 80 types of

Nanatmaja Vyadhi. Acharya Vagabhatta has also considered Vata Vyadhi as a Maharoga. The trouble of Sandhis by Prakupita Vata is the main phenomenon in Samprapti of Sandhigatavata. Sandhis come under the Madhyama Roga Marga and thus, involvement of Madhyama Roga Marga, Vata Dosha and Dhatukshaya figures disease Kashta Sadhyatva. Osteoarthritis 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. Till the age of 55 it occurs equally in both sexes; after 55 the incidence is higher in women. It is estimated that approximately four out of 100 people are affected. The incidence of osteoarthritis in India is as high as 12%. In Ayurveda, general line of treatment for Vata Vyadhi has been described by Acharya Vagbhatta i.e. repeated use of Snehana and Swedana, Basti and Mrudu Virechana<sup>2</sup>. Acharya Sushruta has mentioned the treatment for Sandhigata Vata clearly i.e. Snehana, Upanaha, Agnikarma, Bandhana and Unmardana [3]. From the period of Charaka onwards, the disease Sandhigatavata has identified as a separate clinical entity. Acharya Charaka has described the disease first separately by the name of 'Sandhigata Anila' under the chapter of Vata Vyadhi. Acharya Charaka defined it as a disease, with the symptoms of Sotha, which is palpable as air filled bag (Vata Purna Driti Sparsha) and Pain on flexion and extension of the joints (Akunchana Prasarana Vedana)<sup>4</sup>. Charaka has not included this disease in 80 types of Nanatmaja-Vatavyadhi. However, a disease Vatakhuddata has been mentioned by Charaka in Nanatmaja Vatavyadhi, which is considered as Gulphavata or Sandhigatavata by Acharya Chakrapani [5]. Acharya Sushruta has described Pain (Shula), Swelling (Shotha) and Diminution of the movements at the joints involved (Hanti Sandhigatah) as symptoms of Sandhigatavata [6].

\*Corresponding author: tiwarimukesh9563@gmail.com

Acharya Sushruta has mentioned another disease called Vatakantaka, which occurs due to the vitiated Vata by involving Khadu Sandhi. According to Dalhana and Gayadas, Khadu7 means Padajangha Sandhi (Ankle Joint). The other view has been quoted according to which Khadu may be taken as Parshni (Calcaneum).

## 2. Risk Factors for Osteoarthritis [9]

- Age
- Female Sex
- Race
- Genetic factors
- Major joint trauma
- Repetitive stress e.g. vocational
- Obesity
- Congenital / Developmental defects
- Prior inflammatory joint disease
- Metabolic / Endocrine disorders

### 1) Aim & Objective

1. To establish etiopathogenesis of Sandhigatavata to osteoarthritis on ayurvedic & modern parameters.
2. To assess efficacy & safety of adityapakaguggulu in the management of Sandhigatavata.
3. To assess the efficacy & safety of tiktaksheerabasti in the management of Sandhigatavata.
4. To assess the comparative effect of adityapakaguggulu & tiktaksheerabasti in the management of Sandhigatavata.

## 3. Materials and Methods

### 1) Selection of cases

45 patients were selected for present study from Arogyashala Out Patient Department & In Patient Department, National Institute of Ayurveda, Jaipur. The case selection was random regardless of Age, Sex, Occupation and Socio-economic conditions. Which were well diagnosed of Sandhigatavata (OA) according to ayurvedic & modern signs & symptoms as described in the texts.

### 2) Inclusion criteria

1. Patients of age group 30yrs to 70yrs of both sex.
2. Patients having signs & 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.

### 3) Exclusion criteria

1. Patients below age 30yrs & above 70yrs of both sex.
2. Patients suffering from paralysis.
3. Patients having infections of spine especially Tuberculosis, Brucellosis, pyogenic osteomyelitis, etc.
4. Patients with Rheumatoid arthritis. Gouty arthritis, etc.
5. Patients having neoplasm of spine & other complicated diseases like Congestive Cardiac Failure, Diabetes Mellitus, Malignant Hypertension, etc.
6. Patients having severe Osteoarthritic changes.

### 4) Grouping & Administration of Drug-

45 clinically well diagnosed patients of Sandhigatavata were divided into three groups, each group have 15 patients.

- GroupA-15 well diagnosed patients of Sandhigatavata were administered with ADITYAPAKA GUGGULU two tablets twice in a day with lukewarm water for 30 days. (Each tablet of 500 mg).
- GroupB-15 well diagnosed patients of Sandhigatavata were administered with TIKTAKSHEERA BASTI for 15days (In the form of KALABASTI).
- GroupC-15 well diagnosed patients of Sandhigatavata were administered with ADITYAPAKA GUGGULU two tablets twice in a day with lukewarm water for 30 days & TIKTAKSHEERA BASTI for 15days.

### B. Trial drug

#### 1) Preparation Method of Basti

Firstly, Panchatikta dravyas 75gms has been poured in 1lit. water and then it boiled until 1/4th of water remains (decoction) i.e. 250ml. In this Panchatikta Kwatha added 250ml more milk & it boiled until whole water evaporates i.e. Only 250ml of Tiktaksheera Kwatha Dravya remains. After filtration of this Kwatha, lastly Madhu 15gm, Saindhava 10gm & Ghee 20gm added to Kwatha dravya which was already mixed in separate pot. This is Tiktaksheera Basti which was ready to use.

#### 2) 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:

#### 3) 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.

#### 4) 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.

## 4. 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

Table 1  
Adityapakaguggulu (Chakradatta-Vatvyadhichikitsa prakarana 22/66-67) [8]

Name of drug	Latin name	Part used	Amount(MATRA)
1.Haritaki	<i>Terminalia chebula</i>	Fruit	1part
2.Bibhitaki	<i>Terminalia bellirica</i>	Fruit	1part
3.Amalaki	<i>Emblica officinalis</i>	Fruit	1part
4.Pippali	<i>Piper longum</i>	Fruit	1part
5.Twaka	<i>Cinnamomum zeylanicum</i>	Twaka	1/2part
6.Ela	<i>Elettaria cardamomum</i>	Seed	1/2part
7.Guggulu	<i>Commiphora mukul</i>	Resin	5part

Bhavana Dravya :- Dhashamool Kwath.

Table 2  
Panchatiktaksheerbasti:

Name of drug	Latin name	Part used
1.Guduchi	<i>Tinospora cardifolia</i>	Stem
2.Nimb	<i>Azadirachta indica</i>	Root twak
3.Vasa	<i>Adhatoda vasica</i>	Leaf
4.Kantakari	<i>Solanum Surrattense</i>	Panchanga
5.Patol	<i>Trichosanthes dioica</i>	Leaf

Table 3  
Showing effect of Therapy in Subjective Parametres: (Wilcoxon matched paired single ranked test)

Variables	Group	Mean BT	AT	Mean Diff.	% Relief	SD±	SE±	P	S
WOMAC OA Index	Gr. A	50.33	18.3	32.03	61.58	8.02	2.07	<0.001	HS
	Gr. B	52.86	22.2	30.66	58.00	13.40	3.46	<0.001	HS
	Gr. C	53.66	11.43	42.23	78.50	12.8	3.30	<0.001	HS
Sandhishula (Pain in joints)	Gr. A	3.3	1.1	2.2	66.66	0.91	0.29	<0.001	HS
	Gr. B	3.7	0.8	2.9	78.37	1.66	0.52	<0.001	HS
	Gr. C	4.1	0.4	3.7	99.24	1.49	0.47	<0.001	HS
Sandhishotha (Swelling)	Gr. A	1.66	0.4	1.26	76	0.83	0.21	<0.001	HS
	Gr. B	1.66	0.2	1.46	88	0.91	0.23	<0.001	HS
	Gr. C	1.66	0.13	1.53	92	0.83	0.21	<0.001	HS
Sparshasahatva (Tenderness)	Gr. A	1.86	0.46	1.4	75	0.50	0.13	<0.001	HS
	Gr. B	1.8	0.26	1.53	85.18	0.63	0.16	<0.001	HS
	Gr. C	1.8	0.2	1.6	88.88	0.63	0.16	<0.001	HS
Sandhisputana (Crepitus)	Gr. A	1.26	0.06	1.2	94.73	0.56	0.14	<0.001	HS
	Gr. B	1.26	0.06	1.2	94.73	0.56	0.14	<0.001	HS
	Gr. C	1.26	0	1.26	100	0.45	0.11	<0.001	HS
Sandhigraha (Stiffness)	Gr. A	2.53	0.86	1.66	65.78	0.61	0.15	<0.001	HS
	Gr. B	2.73	0.73	2	73.17	0.75	0.19	<0.001	HS
	Gr. C	2.73	0.6	2.13	78.049	0.51	0.13	<0.001	HS
Akunchana Prasarana Vedana	Gr. A	4.2	1.8	2.4	68.42	1.57	0.49	<0.001	HS
	Gr. B	5	1.3	3.7	74	1.70	0.53	<0.001	HS
	Gr. C	5.8	0.8	5	86.21	1.49	0.47	<0.001	HS

(HS: Highly Significant S: Significant NS: Non Significant)

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.

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 Krura Kostha. 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.

## 5. 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.

### 1) Probable mode of action of adiyapaka 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

Table 4  
Showing effect of Therapy in Subjective Parametres: (Wilcoxon matched paired single ranked test)

Variable	Group	Mean Diff.	SD±	SE±	p	S
WOMAC OA Index	Gr. A	32.03	8.02	2.07	>0.05	NS
	Gr. B	30.66	13.4	3.46		
	Gr. C	42.23	12.8	3.30		
Sandhishhula (Pain in joints)	Gr. A	2.2	0.91	0.29	>0.05	NS
	Gr. B	2.9	1.66	0.52		
	Gr. C	3.7	1.49	0.47		
Sandhishotha (Swelling)	Gr. A	1.26	0.83	0.21	>0.05	NS
	Gr. B	1.46	0.91	0.23		
	Gr. C	1.53	0.83	0.21		
Sparshasahatya (Tenderness)	Gr. A	1.4	0.50	0.1309	>0.05	NS
	Gr. B	1.5	0.63	0.16		
	Gr. C	1.6	0.63	0.16		
Sandhisputana (Crepitus)	Gr. A	1.2	0.56	0.14	>0.05	NS
	Gr. B	1.2	0.56	0.14		
	Gr. C	1.26	0.45	0.11		
Sandhigraha (Stiffness)	Gr. A	1.66	0.61	0.15	>0.05	NS
	Gr. B	2	0.75	0.19		
	Gr. C	2.13	0.51	0.13		
Akunchana Prasarana Vedana	Gr. A	2.4	1.57	0.49	>0.05	NS
	Gr. B	3.7	1.70	0.53		
	Gr. C	5	1.49	0.47		

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.

Shamaka, Tridosha 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).

#### 2) 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. 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. 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.

## 6. Conclusion

Sandhigatavata vis-à-vis Osteoarthritis is multi-factorial, non-inflammatory degenerative joint disorders. There was no apparent change was observed in X-ray before and after treatment. It is concluded that Adityapaka Guggulu along with Tiktaksheera Basti is effective and safe 'Therapeutic agent' in the management of Sandhigatavata (OA).

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