

A CLINICAL RESEARCH ON THE COMBINED EFFECT OF *KOLADI UPANAHA SWEDA* AND *ADITYAPAKA GUGGULU* IN THE MANAGEMENT OF JANU SANDHIGATAVA VIS-A-VIS OSTEOARTHRITIS OF KNEE JOINTNimmi M. Menon*¹ and Manjunath Adiga²¹Assistant Professor, Department of Kayachikitsa, S.S. Agrawal Institute of Ayurveda, Navsari, Gujarat, India.²Professor, Department of Kayachikitsa, Sri Kalabyraveswara Swamy Ayurvedic Medical College, Hospital and Research Center, India.

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ABSTRACT

Background: *Sandhigata Vata* is one of the most common *Vatavyadhi* and based on the clinical features it can be correlated to Osteoarthritis mentioned in the contemporary science. Being a chronic, degenerative inflammatory disease of the knee joint; it causes huge hindrance in the day to day activities of an individual. In this clinical study, total 30 patients having the complaints of Janu Sandhigata Vata (Osteoarthritis of Knee joint) were selected and intervened with *Koladi Upanaha Sweda* externally and *Adityapaka Guggulu* orally. **Objective:** To evaluate the combined therapeutic effects of *Koladi Upanaha Sweda* and *Adityapaka Guggulu* in the management of *Janu Sandhigata Vata* vis-a-vis to Osteoarthritis of Knee Joint. **Materials and Methods:** *Koladi Upanaha Sweda* externally for 7 days and internal administration of *Adityapaka Guggulu* in the dose of 1gm i.e., 500mg two tablets thrice a day (in the morning, afternoon and at night) with lukewarm water as *Anupana* after food for 14 days. The total study was intervened for duration of 21 days. The patients were assessed based on WOMAC index (Western Ontario and McMaster University Osteoarthritis index) and the *Lakshanas* of *Janu Sandhigata Vata* before, mid, after the treatment & on follow up respectively. **Observation & Results:** Clinical data was collected and analyzed statistically. For subjective parameters, Wilcoxon signed rank test was used to compare the mean rank within the group, and for objective parameters, students paired 't'-test was used to compare the mean value within the group. **Interpretation & Conclusion:** The study showed that the combined efficacy of the interventions found to be more efficacious and showed statistically highly significant results in relieving the symptoms.

KEYWORDS: Janu Sandhigata Vata, Osteoarthritis, Vata Vyadhi, *Koladi Upanaha Sweda*, *Adityapaka Guggulu*, Upanaha sweda.

INTRODUCTION

Sandhigata Vata is one of the most common *Vatavyadhi*. The clinical features of *Sandhigatavata*, described in the Ayurveda classical texts are *Shoola* (joint pain), *Shotha* (swelling), *Prasaarana-aakunchanayopravruttischa Vedana* (painful joint movement) and *Vata Poornadriti Sparsha* (affected *Sandhi* resembles a bag filled with air).^{[1],[2]} and based on the clinical features it can be correlated to Osteoarthritis. Being a chronic, degenerative inflammatory disease of the knee joint; it causes huge hindrance in the day to day activities of an individual. These features resemble with that of Osteoarthritis mentioned in the contemporary science. Osteoarthritis is an abnormality of synovial joints characterized by softening, splitting and fragmentation (fibrillation) of the articular cartilage not attributable to direct contact with inflammatory tissue. This is usually accompanied by subchondral sclerosis and bone cysts,

joints space narrowing and bony overgrowths at tissue joint margins (osteophytes).^[3]

The drawbacks of contemporary science management include gastrointestinal toxicity in 50% of NSAIDs users, renal and hepatic metabolism impairment and economic instability in case of surgical intervention. Frequent usage leads to serious complications which require hospitalization. As the contemporary treatments often hinder the life of the individual, Ayurvedic modalities of treatment are encouraged. In this regard, approach of the study is to come out with safer, comprehensive and cost-effective management. Hence this study was conducted during the year 2019 – 2022.

OBJECTIVES OF THE STUDY

1. To evaluate the clinical efficacy of *Koladi Upanaha Sweda* and *Adityapaka Guggulu* in the management

of Janu Sandhigata Vata vis-a-vis to Osteoarthritis of Knee Joint.

- To evaluate the combined therapeutic effects of Koladi Upanaha Sweda and Adityapaka Guggulu in the management of Janu Sandhigata Vata vis-a-vis to Osteoarthritis of Knee Joint.

METHODOLOGY

- 1) Study design: An Open label, single arm study.
- 2) Sampling technique: The subjects who fulfilled the inclusion criteria and complying with the Informed Consent were selected.
- 3) Sample size: 30 patients diagnosed with Janu Sandhigata Vata vis-a-vis to Osteoarthritis of Knee Joint, irrespective of gender were selected for the study.

Diagnostic criteria

Diagnosis was made based on

- Lakshanas of Janu Sandhigata Vata
- Clinical features of Osteoarthritis of Knee Joint
- Subjects presenting with radiological evidence of Osteoarthritis of Knee Joint.

Inclusion Criteria

- Subjects presenting with the Lakshanas of Janu Sandhigata Vata.
- Subjects presenting with the clinical features of Osteoarthritis Knee joint.
- Subjects belonging to the age group of 30 – 60 years irrespective of gender.
- Both fresh cases and those who have undergone treatment for Janu Sandhigata Vata were selected for the study.

Table 1: Intervention.

Koladi Upanaha Sweda	External Application	Upanaha retained for 12 hours. Done for 7 consecutive days
Adityapaka Guggulu	1 gm i.e., 500mg two tablets thrice a day with Ushna Jala as Anupana	For 14 days

ASSESSMENT CRITERIA

The assessment was done based on the subjective and objective parameters of Janu Sandhigata Vata vis-a-vis to Osteoarthritis of Knee Joint.

Subjective parameters such as- Janu Sandhi Shoola (Pain), Janu Sandhi Shotha (Swelling), Janu Sandhi Stabdhat (Stiffness), Janu Sandhi Atopa (Crepitus), Janu Sandhi Prasarana Akunchana Pravrutthi Savedana

Assessment was done on

Table 2: Assessment Schedule

Pre test	-	1 st day (On the day of commencement of the intervention)
Mid test	-	7 th day (On the day of completion of Upanaha sweda)
Post test	-	14 th day (On the day of completion of intervention)
Follow up on	-	21 st day

- Subjects fit for Swedana Karma.

Exclusion Criteria

- Subjects of Post-surgical and prosthetic knee joints were excluded.
- Subjects with history of recent trauma and fracture of Knee joint were excluded.
- Pregnant women and lactating mothers were excluded.
- Subjects suffering from any other systemic disorders which interfere with the course of intervention were excluded.

INVESTIGATIONS

For Diagnosis

X - Ray of Affected knee joint – Antero Posterior and Lateral view.

The following investigations were done if necessary

Lab investigations

- Hb%
- Total Count
- Differential Count
- Erythrocyte Sedimentation Rate
- Random Blood Sugar
- Routine Urine test

INTERVENTION

30 patients of Janu Sandhigata Vata vis-a- vis to Osteoarthritis of Knee Joint were selected and Koladi Upanaha Sweda^[4] was done for first 7 days and Adityapaka Guggulu^[5] was administered orally for 14 days.

The study was intervened for duration of 21 days.

(Pain on Flexion and Extension) and the objective parameters using WOMAC- Index for Osteoarthritis.

Statistical Analysis

- For the statistical analysis, the data obtained from the group were recorded and presented in tabulations and graphs.
- For the statistical analysis, the data obtained were recorded and presented in tabulations and graphs. For subjective parameters, Wilcoxon signed rank

test was used to compare the mean rank within the group, and for objective parameters, students paired 't'-test was used to compare the mean value within the group.

OBSERVATIONS**Table 3: Observations.**

Parameter	Category	Value	Percentage
Age	50-60 years	17	56.67%
Gender	Female	23	76.67%
Religion	Hindu	26	86.67%
Marital status	Married	30	100%
Educational status	Middle School	13	43.33%
Habitat	Sadharana	28	93.33%
Socio-economic status	Middle class	12	40%
Occupation	Home maker	19	63.33%
Family History	With history	18	60%
Fresh or treated cases	Treated	19	63.33%
Nature of work	Physically inactive	14	46.66%
Joints involved	Bilateral	22	73.33%
Chronicity	2-5 years	16	53.33%
BMI	Normal (18.5-24.9)	21	70%
Ahara	Mixed diet	16	53.33%
Nidra	Normal	21	70%
Agni	Vishamagni	20	66.67%
Addictions	Tea or coffee	17	56.67%
Nidanas (Aharaja)	Vishamashana	17	56.67%
	Akala Bhojana	9	30%
	Adhyashana	4	13.33%
Nidanas (Viharaja)	Vegadharana	5	16.67%
	Ativyayama	5	16.67%
	Ratrijagarana	5	16.67%
	Langhana	4	13.33%
	Diwaswapana	5	16.67%
	Atiyadhva	3	10%
	Bharaharana	3	10%
Lakshanas	Janu Sandhi Shoola	30	100%
	Janu Sandhi Shotha	28	93.33%
	Janu Sandhi Atopa	29	96.67%
	Janu Sandhi Stabdhatata	30	100%
	Janu Sandhi Prasarana Akunchana Vedana	30	100%

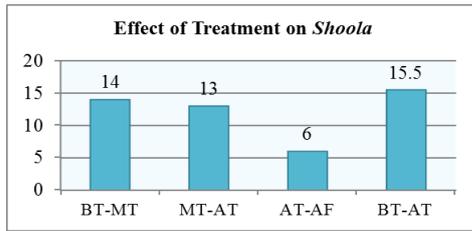
RADIOLOGICAL FINDINGS**Table 4: Radiological Findings.**

Radiographic Grading Scale	Number of Subjects
Mild radiographic findings of osteoarthritis	6 (20.0%)
Minute osteophytes of doubtful clinical significance	5 (16.67%)
Definite osteophytes with unimpaired joint space	5 (16.67%)
Definite osteophytes with moderate joint space narrowing	8 (26.67%)
Definite osteophytes with severe joint space narrowing and subchondral sclerosis	6 (20.0%)
Total	30 (100.0%)

RESULTS

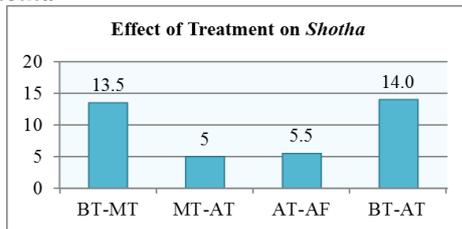
Effect of treatment on assessment parameters on subjective parameters

1. Shoola



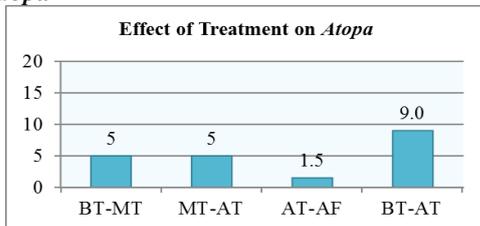
Reduction in *Shoola* was found statistically highly significant from BT-MT ($Z=-5.19$, $p<0.001$), highly significant from MT-AT ($Z=-4.91$, $p<0.001$), non-significant from AT-AF ($Z=-1.51$, $p>0.05$) and highly significant from BT-AT ($Z=-5.00$, $p<0.001$).

2. Shotha



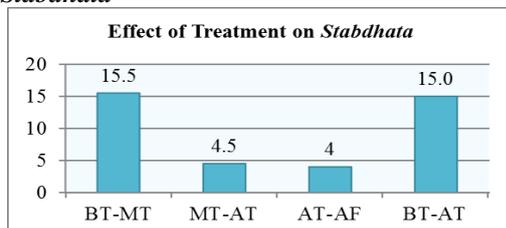
Reduction in *Shotha* was found statistically highly significant from BT-MT ($Z=-4.94$, $p<0.001$), significant from MT-AT ($Z=-3$, $p<0.05$), non-significant from AT-AF ($Z=-1.26$, $p>0.05$) and highly significant from BT-AT ($Z=-4.71$, $p<0.001$).

3. Atopa



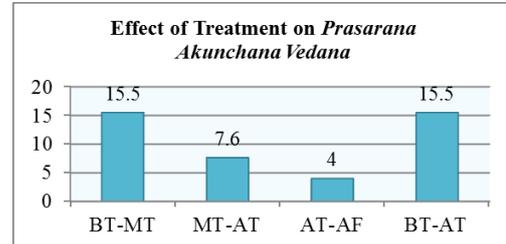
Reduction in *Atopa* was found statistically significant from BT-MT ($Z=-3.00$, $p<0.05$) significant from MT-AT ($Z=-3.00$, $p<0.05$), non-significant from AT-AF ($Z=-1.41$, $p>0.05$) and highly significant from BT-AT ($Z=-4.03$, $p<0.001$).

4. Stabdhatta



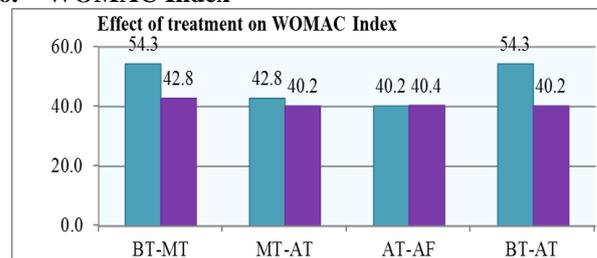
Reduction in *Stabdhatta* was found statistically highly significant from BT-MT ($Z=-5.26$, $p<0.001$), non-significant from MT-AT ($Z=-1.41$, $p>0.05$), non-significant from AT-AF ($Z=-1.13$, $p>0.05$) and highly significant from BT-AT ($Z=-4.97$, $p<0.001$).

5. Prasarana Akunchana Vedana



Reduction in *Prasarana Akunchana Vedana* was found statistically highly significant from BT-MT ($Z=-4.94$, $p<0.001$), significant from MT-AT ($Z=-2.18$, $p<0.05$), non-significant from AT-AF ($Z=-1.13$, $p>0.05$) and highly significant from BT-AT ($Z=-5.03$, $p<0.001$).

6. WOMAC Index



Reduction in WOMAC index was found statistically highly significant from BT-MT ($t=19.60$, $p<0.001$), significant from MT-AT ($t=2.70$, $p<0.05$), not significant from AT-AF ($t=-1.72$, $p>0.05$) and highly significant from BT-AT ($t=9.90$, $p<0.001$).

DISCUSSION

Sandhigata Vata is one among the *Nanatmaja Vata Vyadhi* and is characterized by clinical features like *Shoola*, *Atopa*, *Vata Poorna Druthi Sparsha*, *Shotha*, *Sthabdhatta*, *Prasarana Akunchana Vedana*. Osteoarthritis is an abnormality of synovial joints characterized by softening, splitting and fragmentation (fibrillation) of articular cartilage not attributable to direct contact with inflammatory tissue. This is usually accompanied by subchondral sclerosis and bone cysts, joints space narrowing and bony overgrowths at tissue margins (osteophytes).^[6] OA is the second most common rheumatologic problem and it is the most frequent joint disease with a prevalence of 22% to 39% in India.^[7] OA is estimated to be the tenth leading cause of nonfatal burden and fourth leading cause of Year Lived with Disability (YLD), accounting for 3.0% of total global YLDs.^[8] *Sandhigata Vata* is a disease of *Vata* predominance either due to *Dhatukshaya* or *Margavarodha*.^[9] In the Ayurvedic classics, the aetiopathogenesis and symptomatology of *Sandhigata*

vata is mentioned in concise form. *Sushruta Samhita*, *Yogarathnakara*, *Bhaishajya Rathnavali* and *Chakradatta* have mentioned the treatment for *Sandhigata vata* in specific, i.e. *Snehana*, *Upanaha*, *Bandhana*, *Agnikarma*, *Unmardana*,^[10,11,12,13] and *Shamanoushadhi* as the line of treatment in *Sandhigata Vata*. *Shamana aushadhi* along with *Sthanika chikitsa* is advised in the management of *Sandhigatavata*, this helps in arresting the pathogenesis and plays an important role in treating the *Svabhavajanya vyadhi*. Thus keeping in view the classical background, *Adityapaka Guggulu* along with *Koladi Upanaha Sweda* was selected for the study.

Guggulu kalpana is one such measure, which mitigates *Vata*, provides strength to *Sandhi*. *Acharya Sushruta* has stated that it cures the *Sandhigatavata vyadhi* within a *masa* (Month) just like a thunder bolt destroys the tree. *Adityapaka Guggulu* which is mentioned in *Chakradatta* in *Vata Vyadhi Chikitsa* has ingredients such as *Haritaki*, *Vibhitaki*, *Amalaki*, *Twak*, *Ela*, *Pippali*, *Guggulu* and *Dasamoola kwatha* as *bhavna dravyas*. *Triphala* helps in reducing *Shotha* & prevents bone resorption. By its antioxidant property, improves the calcium absorption and its utility in the body and prevents bone destruction. *Dashamoola* is known for its anti-inflammatory property, cures *Shotha* associated with bone and joint disorders. *Dashamoola* along with *Guggulu* halts or delays degeneration. *Guggulu* being the major ingredient in this act as *Vatashamaka* due to the *Ushna*, *Guru*, *Snigdha*, *Katu rasa* property reduce bone inflammation, alleviates pain, and prevents bone resorption. *Pippali*, *Twak*, *Ela* and *Guggulu*, *Dashamoola* acts in tackling *Agnimandhya* and kindles the *Agni*. When indigestion and metabolic errors are not tackled in a proper way the bone and muscle tissue does not get nourished properly, they get degenerated. Degeneration of tissues results in *Vata* vitiation causing *Sandhigata Vata*. *Dashamoola* along with the above said medicines relieves *Avarana* and cleanses these channels by setting the metabolism into rhythm. The whole combination is said to be highly effective in destroying morbid *Vata*. As the name suggests, *Adityapaka Guggulu* is processed and prepared by giving many exposures to the heat of the sun, thus the compound would have acquired the solar energy. As many bone diseases are caused due to deficiency of Vitamin D, supplement of this vitamin is a must for recovery. Since the body gets sun energy, it fortifies and balances the metabolism in the body. Thus being antagonistic to *Vata* and *Kapha*, the medicine combats vitiated *Vata* and *Kapha* and helps in curing *Sandhigatavata*.

Upanaha sweda acts as *Snehana* and *Swedana* which is one among the prime treatment explained in *Vata Vyadhis*. The contents of *Koladi Upanaha sweda* mentioned in *Charaka Samhita* having ingredients such as *Kola*, *Kulattha*, *Suradara*, *Rasna*, *Masha*, *Atasi*, *Tila*, *Eranda*, *Kushta*, *Vacha*, *Satapushpa* and *Yava* have *Vata-Kaphashamaka* and *Vedanasthapaka* properties are

considered to reduce swelling and tenderness. *Dravyas* used for *Swedana* by its *Ushna* and *Tikshna Gunas* are capable of penetrating the microcirculatory channels (*Srotas*) where they activate the sweat glands to produce more sweat. *Swedana Karma* helps in increasing the permeability of capillary and bringing the morbidities into extra cellular fluid by dilating and clearing the channels of the body. *Swedana Karma* maintains the thermoregulation system of the body by maintaining equilibrium between temperature inside the body and skin temperature. *Sweda Karma* rectifies the function of *Medadhatwagni* and *Bhutagni* and fastens the *Paka Karma* which causes *Srotomukhasodhana* and profuse *Sweda* production. That causes the displacement of exudates and hence relieves pain, relaxes muscular spasm. By *Swedana* due to arterial dilatation the part gets more circulation. So acts as *Stambhaghna*, *Gourabaghna*, *Sheetaghna* and also *Prabha Varna Kara*¹⁴. *Swedana* can be interpreted as fomentation. They are proved to raise local tissue temperature, improve local circulation, relax and soften muscles and fascia, and relieve many kinds of musculoskeletal pain.^[15]

CONCLUSION

Janu Sandhigata Vata is a *Vatavyadhi* presenting with *Janu Sandhi Shoola*, *Janu Sandhi Shotha*, *Janu Sandhi Atopa*, *Janu Sandhi Stabdhatata* and *Janu Sandhi Prasarana Akunchana Vedana*. The *Dushyas* such as *Medo dhatu*, *Mamsa dhatu*, *Asthi dhatu*, *Kandara*, *Peshi*, *Snayu* and *Shleshmadhara Kala* constituting *Asthi-Sandhi*; *Asthivaha* is mainly effected in the disease *Janu Sandhigata Vata*. It is a *Madhyama Roga Marga* and hence is *Yapya*.

In the present clinical study, maximum subjects were female belonging to the middle socio-economic status, Hindu by religion, married and presenting with the *Samanya Lakshanas* of > 5 years chronicity with bilateral involvement. Majority of subjects were of *Vatakapha Prakruti* with *Madhyama Sara*, *Samhanana*, *Pramana*, *Satmya*, *Satwa*, *Ahara Shakti*, *Jarana Shakti*, *Vyayama Shakti* and *Vaya*. The *Samprapthi vighatana* of *Janu Sandhigata Vata* in this study was achieved by internal administration of *Adityapaka Guggulu* for 14 days and *Koladi Upanaha Sweda* externally for 7 consecutive days. The study was statistically analyzed before commencement of intervention (1st day), on the day of completion of *Upanaha Sweda* (7th day), on the day of completion of intervention (14th day) and after follow up (21th day). During the study the trial drugs have not shown any adverse drug reactions.

The study reveals that the combined efficacy of the interventions found to be more efficacious and showed statistically highly significant results in relieving the symptoms such *Janu Sandhi Shoola*, *Janu Sandhi Shotha*, *Janu Sandhi Stabdhatata* and *Janu Sandhi Prasarana Akunchana Pravrutthi Savedana* and showed statistically significant results in the parameter *Janu Sandhi Atopa*.

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