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# A Randomised Comparative Clinical Study to assess the efficacy of *Snigdhapatra Pindasweda* and *Matrabasti* in the management of *Janusandhigatavata w.s.r. to Osteoarthritis of knee*

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## ABSTRACT

*Vata* aggravation and *Parihani* (depletion) of all the *Dhatus* are inevitable in *Vrudhavastha* (old age). Hence there is subsequent vitiation of *Vata* which affects *Asthidhatu* (due to *Ashraya* and *Ashrayi Sambandha*) is common. *Sandhigata Vata* is one amongst them. The involvement of *Marma* with *Vata Dosh* and *Dhatukshaya* makes disease *Yapya*. Hence early management prevents disability in the old age. *Snehana*, *Swedana* and *Basti Chikitsa* are the prime line of management in *Vatadosha*. When the disease is *Shula* and *Grahapradhana*, affecting one body part, the *Snigdha*, *Ekangasweda* is the ideal treatment. So *Snigdhapatra Pindasweda* is selected. The need of *Snehana*, *Brumhana*, *Vatashamana* is best achieved by *Snehabasti* with *Vatashamaka Taila* (*Dashamoola Taila*). To assess the synergistic action, combined treatment is planned in the present study. With this in backdrop, a comparative clinical study was planned in 30 patients allotted into 3 groups of 10 each. Group A treated with *Snigdhapatra Pindasweda*, Group B treated with *Matrabasti* and Group C treated with both the treatment for 7 days. Within the group result showed statistically significant improvement in all the parameters. In between the groups comparison showed statistically significant difference in stiffness, tenderness, movement of knee joint, Walking - time and WOMAC- Index.

**Key words:** *Sandhigatavata*, *Dhatukshaya*, *Matrabasti*, *Snigdhapatra Pindasweda*.

## INTRODUCTION

*Vrudhavastha* (old age) is unavoidable in one's life which is having the dominance of *Vatadosha* and *Parihani* (depletion) of all the *Dhatus*.<sup>[1]</sup> Hence, *Vataja* diseases affecting the *Asthidhatu* (due to *Ashraya* and *Ashrayisambandha*) is common. *Sandhigatavata* is one among them. The involvement of *Marma*, with

*Vatadosha* and *Dhatukshaya* makes the disease *Yapya*. The continuous standing, walking, over weight makes the weight bearing joints more prone. The faulty life style adopted is the risk factor for early manifestation of *Dhatukshaya*. Hence, early detection and proper management is the need in such condition to avoid crippling in later age.

*Sandhigatavata* is characterized by pain, swelling and restricted movement of the joints.<sup>[2]</sup> These clinical findings show a lot of similarity with osteoarthritis of contemporary science. In modern science, osteoarthritis (OA) is the most common arthritic condition affecting the aging population. It is a slowly progressive joint disease. Osteoarthritis (OA) is characterized by focal loss of articular hyaline cartilage with proliferation of new bone and remodelling of joint contour.<sup>[3]</sup> Its high prevalence especially in elderly and high rate of disability related to disease makes it an important disease to be known.

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*Snehana*, *Swedana* and *Basti Chikitsa* are the prime line of management in *Vatavyadhi*.<sup>[4]</sup> When the disease is *Shula* and *Graha* dominant affecting one body part, the *Snigdha*, *Ekangasweda* is the ideal treatment. In *Sandhigata Vata*, a common *Snigdha*, *Ekangasweda* practiced is *Snigdhapatra Pindasweda*. As the disease is pain and swelling dominant with *Vataprakopa*, the leaves having *Vatakaphahara*, *Vedanasthapaka* and *Shothahara* are selected. The need of *snehana*, *brumhana*, *Vata Shamana* in the management of *Sandhigata Vata* is best achieved by *Snehabasti Chikitsa*<sup>[5]</sup> due to its fast action and as it normalises the *Vatadosha* in its *Moolasthan*. In the management of *Marmagata Vyadhi*, *Basti* is considered as ideal too.<sup>[6]</sup> Hence *Dashamooladya Taila*<sup>[7]</sup> which is best *Vatashamaka* is selected for *Matrabasti*. To assess the synergistic action, combined treatment is planned in the present study.

## OBJECTIVES OF THE STUDY

To comparatively evaluate the efficacy of *Snigdhapatra Pindasweda*, *Matrabasti* and *Snigdhapatra Pindasweda* with *Matrabasti* in *Sandhigata Vata* patients.

## MATERIALS AND METHODS

**Study design:** Randomized, Single blind comparative clinical study with pre and post test design.

**Sample size:** 30 patients (10 in each group)

**Sample source:** Minimum of 30 diagnosed patients of *Janu Sandhigata Vata* (osteoarthritis of knee) were selected from the OPD and IPD of S.D.M. College of Ayurveda and Hospital, Udupi, India.

**Drug:** *Dashamooladya Taila*, *Saindhava Lavana*, *Shatapushpa Choorna*, *Moorchita Tila Taila* was prepared in S.D.M. Ayurveda Pharmacy, Udupi, India.

### Diagnostic criteria of *Janu Sandhigata Vata*

- Pain, restricted joint movements
- *Shopha*.
- *Prasarana Akunchane Vedana* in the affected joints

### Inclusion criteria

- Patients fulfilling the diagnostic criteria.
- Patients of either gender and aged above 30 yrs.
- Patients having signs and symptom of osteoarthritis not more than 3 years.
- Patients who are fit for *Ekangasvedana* and *Matrabasti*.

### Exclusion criteria

- Secondary O.A (Rheumatoid arthritis, Gouty arthritis).
- Grade 4 - Joint deformity.
- Other systemic diseases affecting the study.
- Traumatic, infective, post-surgical condition of the kneejoints.

### Investigations

- Haematological investigation: Hb%, TC, DC, ESR, RBS
- Radiological investigations: X-ray of knee - AP view and LAT view

### Intervention of treatment

Selected 30 patients were randomly allocated into three groups;

- Group A - *Snigdhapatra Pindasweda* group.
- Group B - *Matrabasti* group.
- Group C - *Snigdhapatra Pindasweda* and *Matrabasti* group.

The procedures were administered as follows:

### Group A - *Snigdhapatra Pindasweda*

#### *Purvakarma:*

1. Preparation of *Pinda* with *Vatakaphahara* leaves.
2. *Sthanika Abhyanga* with *Moorchita Tila Taila*.

#### *Pradhana Karma:*

*Snigdhapatra Pindasweda* performed as per the standard procedure till *Samyak Swinna Lakshanas* appear.

**Paschat Karma:**

Parihara Vishaya of Swedana are advised to follow.

**Group B - Matrabasti****Purvakarma:**

80 ml of *Dashamooladya Taila* is made luke warm by placing over water bath. Then 1gm of *Saindava Lavana* and 1gm of *Shatapushpa Choorna* is added and filled in the syringe. Red rubber catheter is fitted to it. *Sthanika Abhyanga* with *Dashamooladya Taila* followed by *Stanika Ushma Sweda* is administered.

**Pradhana Karma:** *Matra Basti* (75 ml) is given in the evening after food daily for 7 days.

**Paschat Karma:** *Sphiktadana*, *Padautkshepana*, *Parihara Vishaya* of *Matrabasti* is advised to follow.

**Group C - Snigdhapatra Pindasweda and Matrabasti**

Includes combined treatment of *Snigdhapatra Pindasweda* performed till *Samyakswinna Lakshanas* appear and *Matrabasti* with 75ml of *Dasamooladya Taila* in the evening after food for 7 days.

**Course of treatment:** 7 days.

**Follow up duration:** 14 days

**Total duration of the study:** 21 days

**Assessment criteria****Subjective parameters**

- Pain - Visual Analogue Scale
- Stiffness of affected joint.

**Objective parameters**

- Swelling
- Tenderness
- Range of movement
- Kellegren - Lawrence radiographic Grading Scale Osteoarthritis.

**Functional ability**

- Time taken to walk 30 meters
- Time taken to do 10 sits up

- Time taken to climb 10 steps
- WOMAC score

**OBSERVATION**

In this study, the effect of *Snigdhapatra Pindasweda*, *Matrabasti* and *Snigdhapatra Pindasweda* with *Matrabasti* was assessed in 30 patients suffering from *Janusandhigata Vata* (osteoarthritis knee), fulfilling the inclusion criteria.

- Total no. of patients registered in the study : 30 patients (10 patients in each group)
- Total no. of patients completed the study : 30 patients (10 patients in each group)
- Drop outs : nil.

Other observations recorded in 30 patients are;

**Table 1: Maximum number of patients registered in different observations**

Observation	Maximum	No. of patients	Percentage
Age	61-70	12	40%
Gender	Female	19	63.33%
Religion	Hindu	24	80%
Marital status	Married	30	100%
Desha	Anupa	27	90%
Occupation	Housewife	17	57%
Nature of work	Long standing	17	56.66%
<i>Nidana</i>	<i>Aharaja/viharaja</i>	30	100%
Precipitating factor	Long standing	17	56.66%
Involvement of joint	Both knee	16	53.33%
Mode of onset	Chronic	30	100%

Symptoms of Sandhigatavata	Shoola	30	100%
	Shopha	30	100%
	Stambha	30	100%
	Restricted range of movement	30	100%
	Vaivarnya	0	0%

	10	00	00	00	62	00	920	2
Morning stiffness	I (n=10)	1.00	0.00	1.00	0.4714	0.1492	6.7034	0.004
	II (n=10)	1.30	0.20	1.10	0.3162	0.1001	10.992	0.002
	III(n=10)	0.80	0.00	0.80	0.4216	0.1334	5.9957	0.008
Swelling	I (n=10)	0.90	0.00	0.90	0.7379	0.2335	3.8544	0.004
	II (n=10)	0.80	0.00	0.80	0.7888	0.2496	3.2048	0.011
	III(n=10)	0.90	0.00	0.90	0.8756	0.2771	3.2480	0.010
Tenderness	I (n=10)	0.80	0.00	0.80	0.4216	0.1334	5.9956	0.008
	II (n=10)	0.80	0.00	0.80	0.4216	0.1334	5.9956	0.008
	III(n=10)	0.90	0.00	0.90	0.3162	0.1000	8.9935	0.004
Range of movement	I (n=10)	1	0.00	1	0.8164	0.2584	3.8702	0.004
	II (n=10)	1	0.20	0.80	0.4216	0.1334	5.9957	0.008
	III(n=10)	1	0.00	1	0.4714	0.1491	6.7034	0.004
Kellgren – Lawrence Radiographic Grading	I (n=10)	1.20	0.30	0.90	0.3162	0.1000	8.9935	0.004
	II (n=10)	0.80	0.20	0.60	0.5164	0.1634	3.672	0.031

**RESULTS**

The effect of the Snigdhapatra Pindasweda, Matrabasti and Snigdhapatra Pindasweda with Matrabasti on different parameters of Janusandhigata Vata (osteoarthritis knee) was assessed based on the pre (BT), post treatment (after 7days) (AT) and after 14 days of follow up (AF) scorings. Paired ‘t’ test was applied to compare within the groups and ANOVA test was applied to compare in between the groups. Statistical analysis was done using Sigma stat version 3.5 software.

**Within the groups:** In Group A, after a course of the Snigdhapatra Pindasweda and in Group II, after the course of Matrabasti, and in Group III, after the course of Snigdhapatra Pindasweda with Matrabasti, the analysis of the values revealed that, there was statistically significant improvement observed in all the parameters. The different values are;

**Table 2: Effect of treatment on different parameters**

Symptom	Group and (n)	Mean		Diff in Mean	±SD	±SE	t	P
		BT	AT					
Pain	I (n=10)	1.10	0.00	1.10	0.5676	0.1796	6.1235	0.0004
	II (n=10)	1.40	0.00	1.40	0.5163	0.1634	8.5670	0.002
	III(n=10)	1.10	0.00	1.10	0.3162	0.1000	10.9	0.00

Scale	III(n=10)	1.00	0.10	0.90	0.3162	0.1001	8.9935	0.002
Functional ability: Walking - time	I (n=10)	1.40	0.00	1.40	0.6992	0.2212	6.3272	0.004
	II (n=10)	1.50	0.00	1.50	0.5270	0.1668	8.9935	0.002
	III(n=10)	1.60	0.00	1.60	0.5164	0.1634	9.7909	0.002
10 sit - ups time required in minutes	I (n=10)	1.60	0.40	1.20	0.7888	0.2496	4.8072	0.004
	II (n=10)	1.60	0.50	1.10	0.5676	0.1796	6.1235	0.004
	III(n=10)	1.80	0.10	1.70	0.6749	0.2136	7.9591	0.002
10 steps climb time required	I (n=10)	1.70	0.10	1.60	0.5164	0.1634	9.7909	0.002
	II (n=10)	1.40	0.10	1.30	0.4830	0.1528	8.5043	0.002
	III(n=10)	1.50	0.00	1.50	0.5270	0.1668	8.9935	0.002
WOMAC - Index for Osteoarthritis	I (n=10)	2.00	0.30	1.70	0.4830	0.1528	11.1211	0.002
	II (n=10)	2.00	0.50	1.50	0.5270	0.1668	8.9935	0.002
	III(n=10)	2.00	0.10	1.90	0.3162	0.1007	18.9863	0.002

**In between the groups:** The comparison of values in between the groups revealed that, there was statistically significant difference between the groups in stiffness, tenderness, movement of knee joint, Walking - time required to cover 30 meters in seconds and WOMAC- Index. The different values are;

**Table 3: Comparative effect of the treatment on different parameters**

Symptom	SD			SEM			F	P	Significance
	G-1	G-II	G-III	G-1	G-II	G-III			
Pain	0.421	0.483	0.000	0.133	0.152	0.000	1.703	0.2012	IS*
Morning stiffness	0.527	0.4216	0.000	0.166	0.133	0.000	10.75	0.0004	S**
Swelling	0.000	0.4216	0.000	0.000	0.1333	0.000	2.250	0.1248	IS
Tenderness	0.000	0.5164	0.000	0.000	0.1633	0.000	13.50	<0.001	S
Movement of joints	0.5164	0.4830	0.000	0.1633	0.1528	0.000	7.720	0.0023	S
Kellgren-Lawrence Radiograph Grading Scale	0.9661	0.4316	0.4830	0.3055	0.1000	0.1528	1.500	0.2411	IS
Functional ability: Walking	0.000	0.4830	0.000	0.000	0.152	0.000	3.857	0.0336	S
b)10 sit - ups	0.6992	0.7379	0.5164	0.2211	0.1233	0.1633	1.923	0.1657	IS
c)10 steps climb time	0.5270	0.7071	0.4216	0.1667	0.2236	0.1333	0.941	0.4023	IS

WOM	0.00	0.5	0.0	0.00	0.1	0.0	13.	<0.0	S
AC- Index	0	06	00	0	63	00	50	001	
		4			3				
*IS = Insignificant **S= Significant									

### The total effect of the therapy

The improvement in each group;

- *Snigdapatra Pindasweda* and *Matrabasti* (Group C) : 97.62%
- *Snigdhapatra Pindasweda* (Group A) : 86.62%
- *Matrabasti* (Group B) : 56.34%

### DISCUSSION

*Sandhigatavata* is a *Dhatukshayaja*, *Shoolapradhana Vata* involving *Asthi* as *Gambheera Dhatu* and *Sandhi* as *Marma*. Hence a *Snehana*, *Vatashamaka Chikitsa* is the choice of the treatment. As *Shoola*, *Shopha* and restricted movement are the leading symptom, a *Snigdha Swedana* by using *Vatahara*, *Shoolahara Patras* are beneficial and hence selected for the study. To attain best *Snehana Chikitsa* for *Vata* which imparts *Snehana*, *Brumhana*, *Rasayana* even to the *Gambheera Dhatus*, *Basti Chikitsa* is selected and justified.

#### Within the groups

**Swedana Chikitsa:** As a treatment, *Swedana* is best advised in conditions like *Stambha*, *Shoola*<sup>[8]</sup> and in painful restricted movements which are the leading symptoms in *Janusandhigata Vata*. When *Vata* is involved with *Asthidhatu Kshaya* manifesting as disease, affecting one joint then best treatment will be *Snigdha*, *Ekanga Swedana Chikitsa*. After the *Swedana Chikitsa*, there will be relief from these symptoms. The same is depicted in the present study. There is statistically significant improvement in all the selected parameters. Then *Stambha* which is due to *Sheetaguna Pradhanata*, is reduced through the *Ushna Guna* and *Stambhahara* property of the *Swedana*. *Swedana* also have *Vatakaphahara* and *Shoolahara* property where by the *Shoola* in the joins due to *Vata* is reduced. Hence *Shoolaghnata* as *Samyak Swinna Lakshana* is observed. The *Asthidhatu*

*Kshaya* involved in the *Samprapti* is due to *Ruksha* and *Kharaguna* of *Vata*. Hence a *Snigdha Sweda* which imparts the *Snigdhatata*, *Mardavata* to the *Sandhi* and controls *Vata* in the *Asthi*, bring out the improvement in the form of increased range of movement. As per *Acharya Sushruta*, *Shamananga Sweda* has a property of relieving the *Stabdata* in the joints and provides free movements.<sup>[9]</sup> The leaves used in the *Patrapinda* also possesses the *Vatahara*, *Shoolahara* property,<sup>[10]</sup> thus adding the effect to the *Swedana*. The *Shothahara* property of the leaves helps in relieving the swelling around the joints. Previous researches proved the analgesic and anti-inflammatory effect of different leaves used in the *Patrapinda*.

**Matra Basti:** One of the *Panchakarma* which is best for imparting *Snehana* and controlling *Vatadosha*.<sup>[11]</sup> Best treatment in the *Marma* involvement too. As in *Sandhigata Vata*, *Marma* is involved, *Vata* causing *Asthi* *Kshaya*, there is involvement of *Astivaha Srotas*, it is best treated by *Basti*.<sup>[12]</sup> The *Dashamooladya Taila* adds the effect of *Snehana* and *Vatashamana* to the *Matrabasti*. The same is observed in the present study. The *Snehana*, *Brumhana*, *Rasayana*, *Vatashamana* effect by the *Basti* with *Taila* have contributed to the relief of the symptoms. The *Raktadi Prasada* as *Samyak Lakshana* of *Sneha Basti*<sup>[13]</sup> indicates the *Snehana*, *Mruduta* imparted to the deeper *Dhatus* where by the *Rukshata*, *Kharata* is reduced. The regular and repeated administration of *Matrabasti* may be the ideal treatment in *Gambheera Dhatugataavastha*.

The group treated with both the treatment showed better improvement due to the synergistic action of the treatments. The improvement as minimum in functional ability assessed based on sit ups and climbing. This may be because, the sit ups needs full range of painless movement which is difficult to achieve through one sitting of *Basti* or *Swedana*. Repeated administration of treatment may yield better result.

**The total effect of the therapy:** Comparison of the results of all the 3 groups showed that *Snigdhapatra*

*Pindasweda* in (Group A) and *Snigdhapatra Pindasweda* and *Matrabasti* in (Group C) has given good results. Overall *Snigdhapatra Pindasweda* and *Matrabasti* in (Group C) has given maximum improvement as a *Shamana* therapy. *Snigdhapatra Pindasweda* in (Group A) has more effect in improving the signs and symptoms of *Janu Sandhigata Vata* than *Matrabasti* in (Group B).

**In between the groups:** The comparison of values in between the groups revealed that, the difference is statistically significant difference between the groups in stiffness, tenderness, movement of knee joint, Walking - time required to cover 30 meters in seconds and WOMAC- Index. This may be due to *Stambhahara* effect by the *Swedana*. Even though the *Swedana* possesses *Shoolahara* property, the *Basti* also possess the same effect by controlling the *Vata*. Hence the effect may be same. But the *Stambhahara* effect is more in *Swedana* which may be less in *Matrabasti*. Tenderness, movement of knee joint, walking - time required to cover 30 meters in seconds and WOMAC-Index shows the reduction in the pain and increased range of movement by the combined effect of the therapy. Hence there is statistically significant difference observed between the groups treated with single treatment and combined treatment.

## CONCLUSION

The *Bahyasnigdha Swedana* treatment as *Snigdhapatra Pindasweda* has shown statistically significant improvement in the symptom of *Janusandhigata Vata*. The result is significant statistically in *Matrabasti* group too but the percentage of improvement is less when compared to the *Patrapinda Sweda* group. The improvement is maximum in combined treatment group due to the synergistic action of the therapies. In between the comparison showed that the result achieved in relieving pain and increasing functional ability in *Janusandhigata Vata* is significant in group treated with both the treatment due to its synergistic action. As both the treatment has promising result, the repeated and combined treatment of *Snigdhapatra*

*Pindasweda* and *Matrabasti* may give better result clinically.

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