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# An Open Label Single Arm Clinical Study of *Asthishrinkhala Ghrita Matrabasti* and *Asthishrinkhala Vati* in *Janusandhigatavata* (Osteo-arthritis of knee)

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## ABSTRACT

**Background:** Osteoarthritis is the most common type of arthritis occurring in weight bearing joints like hip and knee. Main presenting symptoms are pain and functional restriction. With advancement in working pattern and age factor, it has become prime cause for aggravation of *Vata Dosha*, which does *Dhatu Kshaya* and *Bala Kshaya* leading to *Sandhigatavata*. Due to all these factors and being a *Marma sthana*, the person will be incapacitated from doing his day-to-day activities. **Aims and objectives:** To clinically evaluate the combined effectiveness of *Asthishrinkhala Ghrita Matrabasti* and *Asthishrinkhala Vati* in *Janusandhigatavata*. **Methodology:** In the present study, 34 patients of *Janusandhigatavata* fulfilling diagnostic criteria were given *Asthishrinkhala Ghrita Matrabasti* for 7 days and *Asthishrinkhala Vati* for 21 days. Assessment were done using Visual Analogue Scale (VAS) for Pain, Ritchie articular index for assessment of tenderness, Swelling and crepitus based on numerical Scoring, Movement of joints measurement is done with Goniometer and physical functions assessed through WOMAC- Index for Osteoarthritis. **Results:** Data was analyzed using appropriate statistical test. Significant results ( $p < 0.05$ ) were found in all the cardinal symptoms- *Vata Poornadruti Sparsha Shotha, Shula on Prasarana* and *Akunchana, Atopa* and *Stabdhatta* in *Janusandhi*. **Conclusion:** *Asthishrinkhala Ghrita Matrabasti* and *Asthishrinkhala Vati* is effective in management in *Janusandhigatavata*.

**Key words:** *Asthishrinkhala, Osteoarthritis, Sandhigatavata, Matrabasti, Ritchie articular index, WOMAC.*

## INTRODUCTION

*Janusandhigatavata* is one among *Sandhigatavata* which is explained under *Vatavyadhi*. *Sandhigatavata* is first described by *Acharya Charaka* as *Sandhigata Anila* with symptoms like *Vata Poornadruti Sparsha Shotha, Shula on Prasarana* and *Akunchana*.<sup>[1]</sup> *Charaka*

has also mentioned *Sandhigatavata* as one among 80 *Nanatmaja Vatavyadhis*.<sup>[2]</sup> With advancement in working pattern and age factor, it has become prime cause for aggravation of *Vata Dosha*, which does *Dhatu Kshaya* and *Bala Kshaya* leading to *Sandhigatavata*. Due to all these factors and being a *Marma Sthana*, the person will be incapacitated from doing his day-to-day activities. This necessitates need for search of a remedy leading to study in this area.

Osteoarthritis is the most common type of arthritis<sup>[3]</sup> occurring in weight bearing joints like hip and knee.<sup>[4]</sup> Main presenting symptoms are pain and functional restriction. When it occurs in knee, pain is localized to anterior or medial aspect of knee which worsens on climbing up and coming down.<sup>[5]</sup> The prevalence of osteoarthritis rises progressively with age and it has been estimated that 45% of all people develop osteoarthritis at some point during their life.<sup>[6]</sup> With 6% incidence of age >30 and 12% incidence >60.<sup>[3]</sup> The

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condition is commonly managed with NSAIDs or COX-2 inhibitors and intra articular glucocorticoid injections are also made used in its management.<sup>[7]</sup> Since the response with this line of management is variable with some patients having little relief whereas others experience relief lasting several months. When the patient with knee osteoarthritis has failed medical treatment modality, patient will be referred for total knee arthroplasty.<sup>[8]</sup> In order to minimize such intervention, a need arises to conduct study in this area. *Acharya Charaka* while explaining the importance of *Basti* mentions that there is none other than *Basti* which is the best treatment for aggravated *Vata*, so *Charaka* has told *Basti* as *Ardha Chikitsa*.<sup>[9]</sup> *Basti* is considered one among *Panchakarma*.<sup>[10]</sup> Hence this mode of treatment is selected for this study.

In general, *Asthishrinkhala* has *Madhura Rasa*, *Laghu Ruksha Guna*, *Ushna Veerya* and *Madhura Vipaka*.<sup>[11]</sup> It is said to be *Vata Vyadhihara* and *Asthi Sandhanakarini*.<sup>[12]</sup> It is said to be *Vatahara*, *Bala Prada* and due to its *Ushna Veerya* is again *Vatadoshahara*. This was an effort to systematically document and validate the effort of said combination in the management of *Janusandhigatavata*.

## AIM AND OBJECTIVES

To clinically evaluate the combined effectiveness of *Asthishrinkhala Ghrita Matrabasti* and *Asthishrinkhala Vati* in *Janusandhigatavata*.

## MATERIALS AND METHODS

### Screening:

Subjects attending OPD and IPD in SDM ayurveda hospital, Hassan were screened by a form prepared with all aspects of history, symptoms of *Janusandhigatavata*.

### Diagnostic criteria:

The diagnosis is mainly based on clinical presentation of patients according to signs & Symptoms of *janusandhigatavata* mentioned in classics like *Vatapurnadhrutisparsha Shotha*, *Prasarana Akunchana Pravritisavedana*, *Sandhishula*, *Sandhi Aatopa* & supported with signs & symptoms of Osteoarthritis of Knee joint and X-ray of knee joint.

### Inclusion criteria:

Subjects presenting with the signs and symptoms of *Janusandhigata Vata* will be selected of either gender irrespective of caste, religion and locality, Subjects between the age group of 30-70 years,<sup>[13]</sup> Radiologic changes in knee x-ray (Kellgren's Lawrence index Grade1 and Grade2), Subjects fit for *Matra Basti*<sup>[14]</sup> and Subjects who are willing to participate and sign the informed consent

### Exclusion criteria:

H/O mono arthritis/ poly arthritis other than knee OA such as gouty arthritis, Rheumatoid arthritis, Psoriatic arthritis and Traumatic cases like fracture, Diagnosed any unstable cardiovascular disease, uncontrolled hypertension (>160/100 mm Hg) and uncontrolled diabetes mellitus (blood sugar fasting >160 mg/dL), History of HIV, HbSAg and Pregnant woman and lactating mother.

### Ethical clearance and CTRI registration

Ethics clearance certificate (IEC No: SDM/IEC/79/2021) was attained from institutional Ethics Committee. Trial was registered on Indian clinical trial registry (CTRI/2022/05/042687).

### Study Design

The study was an open label, single arm, prospective clinical trial on *Janusandhigatavata* (osteo-arthritis of knee) (n=34) selected using the convenience (non-random) sampling technique with pre and post design conducted in SDM college of ayurveda and hospital, Hassan Karnataka.

### Intervention:

Oral medication: *Asthishrinkhala Vati* for 21 days

*Basti: Matrabasti* with *Asthishrinkhala Ghrita* for 7days.

Duration of intervention: 21 Days.

### Source and authentication of drug:

*Asthishrinkhala* Raw drug was obtained from Anamaya drug store, Udupi (GMP Certified Pharmacy) and was authenticated from Department of *Dravya Guna*, SDM college of Ayurveda and Hospital, Hassan.

**Method of preparation of Asthishrinkhala Ghrita:**

**Kashaya** preparation: 1part (20kg) coarse powder of *Asthishrinkhala* taken and 16 parts (320 liters) of water added and reduced to 1/4th.

**Kalka** preparation: 1 Part (2800gm) of fine powder of *Asthishrinkhala* taken and quantity sufficient of water (1.8 liters) was added and *Kalka* prepared.

**Ghrita** - 17 liters

All the above ingredients were taken in vessel and heated on moderate flame according to *Ghrita Paka* until *Ghrita Siddha Lakshanas* was obtained. Later the *Ghrita* is filtered and stored for further use. Dosage: 70 ml<sup>[15]</sup> once a day, Route of administration: Rectal and Duration: 7 days.<sup>[16]</sup>

**Matrabasti Karma (SOP)**

Materials required: *Tila Taila* for *Sthanika Abyanga* and *Asthishrinkhala Ghrita* 70ml for *Matrabasti*, Measuring glass, Syringe-Cathereter (*Basti Yantra*), vessels.

Preparation of *Basti*: Prescribed amount of about 70ml *Asthishrinkhala Ghrita* was taken and made warm and then filled in *Basti Yantra* /syringe with this *Ghrita*.

**Purvakarma**: Consent for the procedure taken and evaluated patient safety before procedure as per pre-procedure checklist. *Sthanika Abhyanga* with *Tila Taila* and *Nadi Sveda* was done on the lower abdomen, back and thighs of the patient. The procedure done immediately after meal (Lunch).

**Pradhana Karma**: Patient was made to lie in the left lateral position by keeping left leg straight and right leg flexed at the knee joint. Applied *Tilataila* for lubrication on local anal region as well as on the catheter. Air removed from *Basti* instrument and slowly *Basti Netra*/nozzle was inserted into the anal canal up to 4 *Angula*. Then *Basti Dravya* was administered by steady pressure. Patient was asked to take deep breath with mouth during the procedure. Cotton pieces was placed at anal region and patient was asked to lie down in supine position.

**Paschat Karma**: After the procedure patient was asked to take rest. Advised patient to go for motion whenever he feels for urges.

**Method of preparation of Vati:**

**Step 1**: 1 Part (1kg) *Asthishrinkhala* coarse powder was taken, 16parts of water was added, boiled and reduced to 1/4th.

**Step 2**: Then 1 part (3kg) *Asthishrinkhala* powder taken to which sufficient quantity of *Kashaya* was added and *Bhavana* was given till contents attain *Subhavitha Lakshana*. Then contents were dried in sunlight and hot air oven followed by pulverization and made into granules, later pressed in tablet punching machine in the size of 500 mg each.

**Dosage**: Two tablets thrice a day (1 tablet = 500 mg), Time of administration: After food, Route of administration: Oral and Duration: 21days.

**Packaging**: *Asthishrinkhala Vati* was packed in sachets containing 126 tablets each and was properly labelled with the name of the drug, reference, details of the manufacturer, batch number.

**Follow up during treatment**: Patient was assessed on 1st day, 7th day and 22<sup>nd</sup> day after completion of treatment.

**Statistical Analysis:**

Statistical analysis was done with Pair T test was used to analyze the significance of changes in scale data and Wilcoxon signed rank test was used to analyze the significance of changes in ordinal data.

**Assessment Criteria:****I. Primary outcome measures**

1. VAS: 0-10
2. Ritchies articular index for Tenderness (Table no. 1)

**Table 1: Ritchies articular index for Tenderness**

Grade 0	Normal	Absent or no tender
Grade 1	Mild	tender
Grade 2	Moderate	Tenderness and wincing
Grade 3	Severe	Tenderness, wincing and withdrawal

**II. Secondary outcome measures**

1. Swelling (table no. 2)

**Table 2: Swelling**

Grade 0	Normal	No Swelling
Grade 1	Mild	Mild Less than 10% circumference of affected joint
Grade 2	Moderate	Moderate More than 10% circumference of affected joint
Grade 3	Severe	Severe More than 20% circumference of affected joint

2. Crepitus (table no. 3)

**Table 3: Crepitus**

Grade 0	Normal	No crepitus
Grade 1	Mild	Crepitus complained by patient but not felt on examination
Grade 2	Moderate	Crepitus felt on examination
Grade 3	Severe	Crepitus felt and heard on examination

3. WOMAC (fig. no. 1)

**Fig. 1: Western Ontario and McMaster Osteoarthritis Index (WOMAC)**

Rate your pain when...	No ne	Slight	Moderate	Severe	Extreme
Walking	0	1	2	3	4
Climbing stairs	0	1	2	3	4
Sleeping at night	0	1	2	3	4
Resting	0	1	2	3	4
Standing	0	1	2	3	4
Rate your stiffness in the...	No ne	Slight	Moderate	Severe	Extreme

Morning	0	1	2	3	4
Evening	0	1	2	3	4
Rate Your Difficulty When...	No ne	Slight	Moderate	Severe	Extreme
Descending stairs	0	1	2	3	4
Ascending stairs	0	1	2	3	4
Rising from sitting	0	1	2	3	4
Standing	0	1	2	3	4
Bending to floor	0	1	2	3	4
Walking on even floor	0	1	2	3	4
Getting in/out of car	0	1	2	3	4
Going shopping	0	1	2	3	4
Putting on socks	0	1	2	3	4
Rising from bed	0	1	2	3	4
Taking off socks	0	1	2	3	4
Lying in bed	0	1	2	3	4
Getting in/out of bath	0	1	2	3	4
Sitting	0	1	2	3	4
Getting on/off toilet	0	1	2	3	4
Doing light domestic duties	0	1	2	3	4

(cooking, dusting)					
Doing heavy domestic duties (moving furniture)	0	1	2	3	4
Total (out of 96)					

**OBSERVATIONS**

90 subjects were screened, 34 subjects were enrolled and completed the study. Majority among 34 subjects, 14(41.2%) subjects belonged to age group of 61-70 years, 24(70%) subjects were females, 12(35.3%) subjects were uneducated, 29(85.3%) subjects were Married, 23 (67.6%) subjects belonged to Homemaker,

16 (50%) subjects belonged to Middle Class, 32 (47.1%) subjects had *Vatapoorna Driti Sarsha Shotha*, 67 (98.5%) subjects had *Vedana* during *Prasarana* and *Akunchana* , 39 (57.4%) subjects had *Stambha*, 50 (73.5%) subjects had *Atopa*, 34 (100) subject had Gradual Mode of onset, 16 (47.1%) subjects had Difficulty in sitting, 29 (85.3% ) subjects had Difficulty in standing, 29 (85.3%) subjects had Difficulty in walking, 34 (100%) subjects had Difficulty In climbing stairs, 4 (11.8%) subjects had Difficulty in lying down, 22 (64.7%) subjects had Difficulty in squatting, 34 (100%) subjects had Grade 2 x-ray of knee joint (kellegrenc Lawrence index), 5 (7.4%) subjects had Redness over knee joint, 13 (32.2%) subjects had Antalgic Gait 32(47%) subjects Local temperature over knee joint Raised and 22 (64.7%) subjects were of BMI-25-29.9.

**Table 4: Results of Paired t Test**

Parameters	Mean difference	SD	SE	Sig.	95% CI		Remarks
					Lower	Upper	
VAS BT-22 <sup>nd</sup> day	4.470	1.1777	.142	<0.016	4.185	4.755	S
R.O.M flexion BT-22 <sup>nd</sup> day	-12.352	6.076	-13.823	<0.016	-13.823	-10.8822	S
R.O.M-Extension BT-22 <sup>nd</sup> day	9.338	3.756	.4554	<0.016	10.247	20.502	S
Total score Pain (WOMAC) BT-22 <sup>nd</sup> day	5.088	1.311	.224	<0.016	4.630	5.545	S
Total score Stiffness (WOMAC) BT-22 <sup>nd</sup> day	1.058	1.391	.238	<0.016	.573	.573	S
Total score on difficulty in physical function (WOMAC) BT-22 <sup>nd</sup> day	17.529	3.863	.662	<0.016	16.181	18.877	S
Total WOMAC score knee	22.617	4.592	.787	<0.016	21.015	24.220	S

BT-22 <sup>nd</sup> day										
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Table 5: Results of Wilcoxon Signed Rank Test

	Negative ranks			Positive ranks			Ties	Total	Z value	P value	Remarks
	N	MR	SR	N	MR	SR					
Ritchies articular index for tenderness for knee BT-22 <sup>nd</sup> day	24	12.50	300	0	.00	.00	44	68	-4.490	<0.016	S
Swelling of knee BT-22 <sup>nd</sup> day	22	11.50	253.00	0	.00	.00	46	68	-4.284	<0.016	S
Crepitus of knee BT-22 <sup>nd</sup> day	42	21.50	903.00	0	.00	.00	26	68	-6.016	<0.016	S

## DISCUSSION

**Effect of therapy on VAS:** *Asthishrinkhala* has *Vedanasthapana* property and when processed with *Ghrita*, the potency was probably enriched. Friction of bony parts was reduced by increasing *Snehatva* of *Sthanika Shleshaka Kapha* thereby lubricates joints. The pain got reduced by *Vata Shamana* and *Asthidhatu Prasadnam*. *Cissus quadrangularis*, which has been proved to be highly effective in relieving pain, reduction of swelling in arthritic conditions. The mechanism through which *Cissus* exerts its analgesic and anti-inflammatory properties by preventing the conversion of arachidonic acid to inflammatory prostaglandins.<sup>[17]</sup>

**Effect of therapy on Tenderness:** Administration of *Asthishrinkhala* might have reduced the inflammation in the subjects, which in turn reduced localized tenderness in the knee joint. The above results were observed, probably due to property of *Madhura Rasa* like *Tarpayathi*, *Shlesmanam Abhi Vardhayati*. Because of this quality it will increase the *Shleshaka Kapha* in the joint and helps in easy movement of the joint. *Madhura Rasa* being *Pruthvi* and *Ap Mahabhuta Pradhana* thereby helps in increasing the *Snigdha* and *Picchila Guna* in the *Sandhi* region and stabilizes the

joint (*Sthairyakara*). It also possesses *Shothahara* and *Vedanasthapana* property. By all this property it helps in reducing the symptom of tenderness in the joint.

**Effect of therapy on Vatapoornadritisparsha Shotha:** *Shotha* is having *Chala* and *Asthira Laxana* indicating role of *Vikrita Vata*. Because when *Vata Prakopa* takes place there is decrease in *Shleshaka Kapha* in the joint. This leads to wear and tear in the joint giving *Vishesha Laxana* of *Vatapoornadrutisparsha* (air filled bag) of *Janusandhivata*. *Asthishrinkhala* by means of its *Shothahara* property, its *Ushna Veerya* and *Basti* being the prime *Shodana* helps to pacify *Vata* and thereby reduce *Shotha*. The anti-inflammatory features of *cissus quadrangularis* suggest that it acts by preventing the conversion of arachidonic acid to inflammatory prostaglandins. These properties helped in reducing the swelling.

**Effect of therapy on Atopa:** *Vata* localized in *Janusandhi* causes *Stanika Shleshaka Kapha Kshaya* causing *Rukshata* and *Kharata* in *Sandhi* which affects *Samshleshana Karma*, this causes *Atopa* in *Sandhi*. *Kharatva* and *Rukshatva* in *Sandhi* was reduced by supplementation of *Sneha* through *Basti* and *Asthishrinkhala* by virtue of its *Madhurarasa* was helpful in increasing the *Shleshaka Kapha* in the joint

and by means of its *Pruthvi* and *Apmahabhuta Pradhanata* it was helpful in increasing the *Snigdha* and *Picchilaguna* in the *Sandhi* region and thereby stabilizes the joint (*Sthairyakara*). This might have reduced the *Atopa*.

**Effect of therapy on ROM-flexion and Extension:** In *Janu Prasarana* and *Akunchana* function is carried out by *Kandara*. *Sandhi Vedana* during *prasarana Akunchana* of *Janu Sandhi* is due to localised *Vata Prakopa*. According to contemporary science, Range of Motion is affected by Pain, Swelling, and Stiffness factors. The trial drug *Asthishrinkhala* by virtue of its *Bala Prada* gives strength to *Kandara* and has significantly reduced all symptoms by virtue of its properties such as *Shoolahara*, *Shothahara* and *Ushna Veerya* in present condition. This in turn helped in improvement of Range of Motion of affected joints (Restoration of function of *Sandhis*).

**Effect of therapy on Total score Pain (WOMAC):** *Asthishrinkhala* has *Vedanasthapana* property. The pain got reduced by *Vata Shamana* and *Asthidhatu Prasadana*.

**Total score stiffness (WOMAC):** *Stambha* or *Stabdhatu* in *Janu* was manifested as a result of *Sthanika Vriddhi* of *Sheeta Ruksha* and *Khara Guna* of *Vata*. *Sheeta Guna* causes *Stambha* in *Sandhi*, *Ruksha* and *Khara Gunas* decreases *Snigdha* and *Shlakshnata* (*Shleshaka Kapha*) in *Janusandhi* causing restricted movement in knee joint. *Snigdha* and *Shlakshnata* are very essential for free movement of knee joint. *Asthishrinkhala* due to its *Ushna Veerya* counteract *Sheeta Guna* of *Vata* and *Snigdha Guna* of *Ghrita* counteracts the *Ruksha* and *Kharaguna* thereby helps to reduce *Stambha* in *Janu Sandhi*.

**Effect of therapy on total score Difficulty in activities (WOMAC):** The flexion and extension of the knee is possible with the coordinated activity of the muscles and the joint structures. *Sandhana* property of *Asthishrinkhala* will give strength to the knee. *Snigdha Guna* of *Asthishrinkhala* and *Ghrita* counteracts *Ruksha* and *Khara Guna* of *Vata* thereby subsiding wear and tear of joints, hence functional capacity of the joint hindered due to pain and stiffness of joints improved.

**Effect of therapy on Total score WOMAC:** WOMAC score indicates about the course of the disease. Reduction in WOMAC score indicates that trial drug has control over the pathology of disease by virtue of its properties such as *Shoolahara*, *Shothahara*, *Ushna Veerya*, *Snigdha Guna* (*Matrabasti*) which resulted in symptomatic relief from pain, stiffness and difficulty in movement regarding knee joints, thus reduction in womac score was observed.

**Probable Mode of Action of Asthishrinkhala** *Asthishrinkhala* is explained in all the *Nighantus*. *Asthishrinkhala* by virtue of its *Madhura Rasa* does *Tarpayathi*, *Shlesmanam Abhi Vardhayati* and this quality is helpful in increasing the *Shleshaka Kapha* in the joint thereby helps in easy movement of the joint. *Madhura Rasa* being *Pruthvi* and *Ap Mahabhuta Pradhanata* helps in increasing the *Snigdha* and *Picchilaguna* in the *Sandhi* region and stabilizes the joint (*Sthairyakara*). This property counteracts *Vata* and increases *Sheshaka Kapha* in *Sandhi*, thereby reduces *Shotha* and *Atopa*.

*Asthishrinkhala* due to its *Ushna Veerya* counteract *Sheeta Guna* of *Vata* and helps to reduce *Stambha* in *Janusandhi*. *Asthi-Sandhana* property of *Asthishrinkhala* helps in *Sandhana* of *Asthidhatu* thereby mechanical injury of *Sandhi* is prevented, hence inflammatory process is arrested. *Asthishrinkhala* by virtue of its *Bala Prada* gives strength to *Kandara* and has significantly reduced all symptoms by virtue of its properties such as *Shoolahara*, *Shothahara*, *Ushna Veerya* in present condition. This in turn helps in improvement of Range of Motion of affected joints (Restoration of function of *Sandhis*). *Asthishrinkhala* has *Vedanasthapana* and *Shothahara* property by which it helps in relieving pain and swelling thereby reduces stiffness followed by improvement in Range of motion in knee.

Anti-inflammatory activity of *Cissus Quadrangularis*.<sup>[18]</sup> Flavanoids presents in *Cissus quadrangularis* such as tetraterpenoids,  $\beta$ -sitosterol, Calcium oxalate, carotene, amyridin and anabolic ketosteroids which are responsible for acceleration of healing and possess analgesic and anti-inflammatory activity helps in



inhibiting the inflammatory process, presence of luteolin and  $\beta$  sitosterol in *Cissus quadrangularis* gives an anti-inflammatory effect. This substance prevents the conversion of arachidonic acid to inflammatory prostaglandins.

*Cissus* possesses anabolic and/or androgenic properties. In addition to speeding the remodeling process of the healing bone, *Cissus* also leads to a much faster increase in bone tensile strength and very much helpful in degenerative conditions of bone.<sup>[19]</sup>

#### Probable Mode of Action of *Ghrita*

The reason behind selecting *Ghrita* as base for *Asthishrinkhala* in *Matrabasti* was because *Ghrita* is considered as *Sarva-Snehottama* and *Ajanma Satmya*, because of its *Yogavahi* and *Samskarasya Anuvartanat* property it potentiates action of the drug processed with it.<sup>[20]</sup> In general, *Ghrita* has *Brumhana*, *Shlakshana*, *Guru* and *Deepana Guna*.<sup>[21]</sup> It is also said to be *Sapta-Dhatu Vardaka* and acts as *Rasayana*. It has *Madhura Rasa* and *Madhura Vipaka* and possesses *Gunas* like *Soumya* and *Mridu*. *Ghrita* also contains vitamin D which plays an important role to utilize calcium and phosphorous in blood and bone building.<sup>[22]</sup>

#### Probable Mode of Action of *Matra Basti*

*Basti* is the nearest route of administration of *Aushadha* to *Pakvashaya*, which is the main *Sthana* of *Vata*. In *Janusandhigatavata*, there occurs vitiation of *Vata*. Thus, *Basti* help to tackle *Vata* in *Janusandhigatavata*. *Basti* has been indicated as the line of treatment for *Marma Vikaras* and *Janusandhi* being *Marmasthana*, thereby *Basti* helps in the management of *Janusandhigatavata*. *Basti* acts mainly due to the *Veerya* of the *Aushadha*, which in turn depends on the *Gunas* of the *Aushadha* as well. In the classics, the mode of action of *Basti* is explained by the help of similies by which we can understand the concepts in a better way.

a) The *Veerya* of *Basti Dravya* administered through *Guda* into the *Pakwashaya* reaches whole *Shareera* through “*Srotasas*” just like the active principles in water reaches to the whole plant

when it is poured at the root of plant. This explains the systemic action of *Basti*.

b) A tree fed with water at its roots gives green leaves, delicate sprouts and with *Kala* it grows to a big tree, similarly *Shareera* grow strong by the administration of *Sneha Basti*. This explains the nutritive action of *Basti*.

Rectal route of administration has been given importance in present day pharmacology considering drug assimilation and bioavailability just like the intravenous mode of administration.

*Susruta* has described *Pakvashaya* as *Purishadharakala* in *Shareere Sthana*. *Dalhana* again correlates this *Purishadharakala* to *Asthidharakala* in *Kalpa Sthana*. Hence *Basti* administered to *Pakvashaya* is beneficial to *Asthi*, As there occurs *Asthi Dhatu Kshaya* in *Sandhigata Vata*, *Basti* is the best line of treatment for *Sandhigatavata*.

*Sneha* given at *Guda* which is considered as the *Moola* of the body, reaches the whole body and nourishes all *Dhatus* even upto *Shukra Dhatu*. Thus, *Basti* nourishes and replenishes all the *Dhatus*, thereby combating *Dhatukshaya*.

In case of *Matra Basti*, one of the important factors that help drug absorption is its lipid solubility. When the drugs are lipid soluble, they will be absorbed readily from the intestinal mucosa.

*Asthishrinkhala Ghrita* given as *Matra Basti* does *Snehana* and *Brumhana* in the body including *Sandhis* and does nourishment of *Kapha* by the action of *Snehana*, which helps to counteract *Ruksha*, *Khara Gunas* of morbid *Vata Dosha*. It also does *Sandhi Samshleshana* and gives *Sthirata* for *Sandhi* as it nourishes *Kapha* in the body. By these actions, *Matra Basti* does *Shamana* of morbid *Vata* and helps in improvement of joint functioning and causes reduction of signs and symptoms of *Janusandhigatavata* i.e., *Sandhi Vedana*, *Sandhi Shotha*, *Sandhi Hanthi* and *Sandhi Atopa*.

#### CONCLUSION

Combination of *Asthishrinkhala Ghrita Matra Basti* and orally *Asthishrinkhala Vati* showed marked effect on

the signs and symptoms of *Janusandhigatavata-Vatapoor nadritisparsha Shotha* (joint swelling), *Vedana* during *Prasarana* and *Akunchana* (Pain on movements), *Stambha* (Restricted movements) *Atopa* (Crepitus) by means of its *Rasa*, *Guna*, *Veerya*, *Shothahara* and *Vedanasthapanahara* property. There was marked improvement in signs and symptoms of *Janusandhigatavata* in the first 7 days of treatment that constituted *Matra Basti* along with *Shamana Aushadhis*. There was significant Improvement in primary outcome measures like VAS, Ritchie articular index for assessment of tenderness and in secondary outcome measures like R.O.M, Swelling, Crepitus and WOMAC.

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