

A Clinical Study to Evaluate the Efficacy of Majja Basti in the Management of Janusandhigatavata with Special Reference to Degenerative Osteoarthritis of Knee Joint

Dr. P Saritha¹, Dr. Rajesh Sugur², Dr. Doddabasayya Kendadmth³

¹Post Graduate Scholar, Department of Panchakarma,

²Professor and HOD, Department of Panchakarma,

³Professor, Department of Panchakarma,

^{1,2,3}Taranath Government Ayurvedic Medical College and Hospital, Ballari, Karnataka, India

ABSTRACT

Sandhigatavata is one among Vatavyadhi which can mainly occurs in Parihani Avastha of madhyama vata and vriddhavata due to dhatukshaya. Sandhi Shula is the cardinal feature of the disease and associated with sandhi shotha, vata purna druti sparsha, prasarana akunchana janya vedana. Osteoarthritis is chronic degenerative disease caused by deterioration of the articular cartilage and subchondral bone in the joints. It is characterized by pain, stiffness and loss of flexibility of joints. Basti is considered as a type of Abhyantara Snehana and also it is a modality of treatment in managing disorders of Vata dosha. Matrabasti is a type of Sneha Basthi in which is indicated in people persons afflicted by diseases due to Vata Dosh. It does Brihmana and helps in pacifying Vata Dosh. So here an attempt is made on 30 patients through Matrabasti using Majja for treating Janusandhigatavata in specific. Mahisha Majja was selected for matrabasti. The overall effect of the treatment in janusandhigata vata w.s.r. osteoarthritis of knee joint has shown statistically highly significant results on parameters like sandhishoola, prasarana, akunchana janya vedana, WOMAC osteoarthritis index, sandhi sputana, and shown significant results on range of motion, and shown non- significant results on radiological findings by considering wilcoxon matched pairs test values and paired t test values.

KEYWORDS: Sandhigata vata, Osteoarthritis, Majja

INTRODUCTION

Sandhigatavata is one among Vatavyadhi which can mainly occurs in Parihani Avastha of madhyama vata and vriddhavata due to dhatukshaya¹. Sandhi Shula is the cardinal feature of the disease and associated with sandhi shotha, vata purna druti sparsha, prasarana akunchana janya vedana².

Osteoarthritis is chronic degenerative disease caused by deterioration of the articular cartilage and subchondral bone in the joints. It is characterized by pain, stiffness and loss of flexibility of joints. Further, Sandhigatavata can be correlated to Osteoarthritis. 9.6 % of men and 18.0% of women aged over 60 years have symptomatic Osteoarthritis world wide. Osteoarthritis is a common degenerative joint

condition with prevalence of about 22% to 39% in India³.

Acharya Charaka have mentioned Snehana (Bahya, Abhyantara) as a line of treatment in Sandhigatavata⁴. Basti is considered as a type of Abhyantara Snehana and also it is a modality of treatment in managing disorders of Vata dosha. Hence it is considered as Ardha Chikitsa⁵. Matrabasti is a type of Sneha Basthi in which Sneha is administered in lowest dosage (1/4th) quantity⁶. Matrabasti is indicated in people persons afflicted by diseases due to Vata Dosh⁷. It does Brihmana and helps in pacifying Vata Dosh⁸.

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Majja (Bone marrow) is a type of sneha dravya and is one among Mahasneha, Acharya Charaka explained that “Majja Visheshatho Asthanam cha Balakrit Snehane Hitah”⁹ and Acharya Shushruta and Vagbata quotes that pradhana karma of Majja is Purana of Asthi dhatu^{10,11}. So as per “Swayoni vardhana dravyopayogah”¹², Majja is useful in Sandhigatavata.

AIMS AND OBJECTIVES OF STUDY:

“To asses the effect of matra basti with MAJJA in the management of Janusandhigata vata with special reference to degenerative osteoarthritis of knee joint”.

METHODOLOGY OF THE STUDY:

30 patients of janusandhigata vata who fulfill the inclusion criteria were randomly selected, and were examined for both subjective and objective parameters using VAS scale and goniometer, the gradings noted. And then informed consent was taken prior to the treatment.

INCLUSION CRITERIA:

1. Patients having lakshanas of janusandhigatavata and osteoarthritis.
2. Age group between 40 to 70 years of either sex.

3. Radiological evidence of osteoarthritis of knee.
4. Patients fit for Matrabasti.

EXCLUSION CRITERIA:

1. Patients with vatarakta, amavata, koshtukashirsha, Rheumatoid arthritis, gouty arthritis, psoriatic arthritis and other diseases of knee joints.
2. Patients with other systemic diseases which interferes with the treatment.
3. Patients having traumatic, neoplastic, and infectious conditions of knee joints.

Diagnostic criteria:

Individuals will be selected as per the classical Lakshanas of Sandhigata Vata.

- Shabdha Purna Druti Sparsha,
- Sandhi shoola,
- Sandhi Shotha,
- Prasarana Akunchana Janya Vedana, and also based on signs and symptoms of Osteoarthritis of Contemporary science.
- Blood investigations: Hb%, ESR, RA factor, CRP, Uric acid, Serum calcium, X- ray of affected knee.

Table No: 1 INTERVENTION:

Procedure	Treatment	Observation period	Total study duration
Poorva karma	Pachana Deepana with Trikatu churna , Dose - 1 - 3gms, TID, before food, Anupana - warm water. Duration - 3-5 days	BT: 0 th day AT: 20 th - 22 nd day AF ₁ : 36 th - 38 th day AF ₂ : 52 nd -54 th day	52 - 54 Days
	Kosta Shodhana with Murchita Eranda taila . Dose - according to kosta (30 to 60 ml) Anupana - ushna jala. Time - after kapha kala . Duration - 1 day		
	Sthanika abhyanga .i.e. kati,udarapradesha with Murchita tila taila followed by sthanika patra panda sweda .		
Pradhana Karma	Administration of Mahisha Majja through Guda marga .		
	Dosage One and half pala (72 ML)		
Paschata Karma	Spik tadana Pada utkshepana		

ASSESSMENT CRITERIA:

Subjective criteria:

1. JANU SANDHI SHULA (PAIN)–Visual Analogue Scale will be used for assessing pain.
2. PRASARANA AKUNCHANA JANYA VEDHANA –
 - Grade 0 – no pain
 - Grade 1 – pain with out wincing of face
 - Grade 2 – pain with wincing of face
 - Grade 3 – prevents complete flexion.

Objective criteria:

- EDEMA (JANU SANDHI SHOTHA):
 - Grade 0 – no edema
 - Grade 1 – mild edema .2mm depression that disappears rapidly
 - Grade 2 – moderate edema. 4mm depression that disappears in 10 – 15 seconds.
 - Grade 3 – moderately severe edema. 6mm depression that may Last more than one Minute.
 - Grade 4 – severe edema. 8mm depression that can last more than 2 minute.
- CREPITUS (JANU SANDHI SPUTANA):
 - Grade 0 – no crepitus
 - Grade 1 – mild – crepitus complained by patient and not felt on Examination.
 - Grade 2 – moderate – crepitus felt on examination.
 - Grade 3 – severe – crepitus felt and heard on examination.
- Range of motion –measured using Gonio meter
- WOMAC index for physical function assessment
- Radiological findings - the kellgren-lawrence index was used to assess the

Changes in radiological findings.

- Grade 0 – no radiographic findings
- Grade 1 – doubtful narrowing of joint space, and possible osteophytic Lipping.
- Grade 2 – definite osteophytes, definite narrowing of joint space.
- Grade 3 - moderate multiple osteophytes, definite narrowing of joint spaces, some sclerosis and possible deformity of bone contour.
- Grade 4 – large osteophytes, marked narrowing of joint space, severe sclerosis and definite deformity of bone contour .

OBSERVATIONS**DISTRIBUTION OF 30 PATIENTS OF JANUSANDHI GATAVATA ACCORDING TO AGE****Table No.2 Distribution of 30 patients of Janusandhigatavata according to age**

Age Group (Yrs)	Total No. of patients	Percentage of total patients
41-50	16	54%
51-60	7	23%
61-70	7	23%

DISTRIBUTION OF PATIENTS BASED ON LAKSHANAS**Table No. 3 Distribution of Patients Based on Lakshanas:**

Lakshnas	Present in no. patients	Percentage of lakshanas present
Sandhi shula	30	100%
Sandhi shota	0	0%
Prasarana kunchana janya Vedana	30	100%
Sandhi sputana	30	100%
Sthamba	3	10%
Sparsha asahyata	3	10%

RESULTS**Table no. 4 ASSESSMENT OF TOTAL EFFECT OF INTERVENTION**

Parameters	Sides	BL		Follow-ups	Mean	SD	Mean Diff.	SD Diff.	% of change	Z-value	p-value
		Mean	SD								
VAS (Janu Sandhi Shula)	Right knee	4.87	1.25	AT	2.67	0.96	2.20	0.81	45.21	4.7030	<0.001, HS
				AF1	2.40	0.97	2.47	1.14	23.36	4.7030	<0.001, HS
				AF2	2.40	0.97	2.47	1.25	25.73	4.6226	<0.001, HS
	Left knee	4.87	1.25	AT	2.67	0.96	2.20	0.81	45.21	4.7030	<0.001, HS

				AF1	2.33	0.92	2.53	1.04	21.40	4.7821	<0.001, HS
				AF2	2.33	0.92	2.53	1.17	23.97	4.7030	<0.001, HS
Pain scores during flexion and ext	Right knee	1.90	0.61	AT	1.10	0.48	0.80	0.55	42.11	4.1069	<0.001, HS
				AF1	1.07	0.45	0.83	0.53	27.93	4.1973	<0.001, HS
				AF2	1.10	0.48	0.80	0.55	28.99	4.1069	<0.001, HS
	Left knee	1.93	0.64	AT	1.13	0.43	0.80	0.61	41.38	4.0145	<0.001, HS
				AF1	1.10	0.40	0.83	0.59	30.63	4.1069	<0.001, HS
				AF2	1.13	0.43	0.80	0.61	31.57	4.0145	<0.001, HS
Crepitus (Janu sandhi sputana)	Right knee	2.37	0.56	AT	1.70	0.79	0.67	0.48	28.17	3.9199	<0.001, HS
				AF1	1.60	0.72	0.77	0.43	18.18	4.1973	<0.001, HS
				AF2	1.60	0.72	0.77	0.43	18.18	4.1973	<0.001, HS
	Left knee	2.43	0.63	AT	1.60	0.67	0.83	0.46	34.25	4.2857	<0.001, HS
				AF1	1.57	0.68	0.87	0.43	17.84	4.3724	<0.001, HS
				AF2	1.57	0.68	0.87	0.43	17.84	4.3724	<0.001, HS
Range Of Motion	Right knee	4.80	1.63	AT	3.93	1.70	0.87	1.25	18.06	2.9341	0.0033,S
				AF1	3.87	1.66	0.93	1.26	26.20	3.0594	0.0022,S
				AF2	3.80	1.77	1.00	1.26	26.24	3.1798	0.0015,S
	Left knee	4.47	1.72	AT	4.07	1.53	0.40	0.81	8.96	2.2011	0.0277,S
				AF1	4.07	1.53	0.40	0.81	18.22	2.2014	0.0277,S
				AF2	4.07	1.53	0.40	0.81	18.22	2.2014	0.0277,S
WOMAC index for Physical Function (%)	Right knee	53.93	16.49	AT	30.10	15.54	23.83	8.70	15.0080	<0.001, HS	<0.001, HS
				AF1	29.32	15.83	24.62	9.01	14.9682	<0.001, HS	<0.001, HS
				AF2	29.22	15.84	24.71	9.19	14.7334	<0.001, HS	<0.001, HS
	Left knee	53.83	15.46	AT	30.10	14.95	23.73	8.81	14.7519	<0.001, HS	<0.001, HS
				AF1	29.02	15.54	24.81	8.84	15.3694	<0.001, HS	<0.001, HS
				AF2	28.97	15.59	24.86	8.92	15.2712	<0.001, HS	<0.001, HS
Radiological Findings	Right knee	2.77	0.94	AT	2.77	0.94	0.00	0.00	0.00	0.0000	1.0000,NS
				AF1	2.73	1.01	0.03	0.18	6.60	0.0000	1.0000,NS
				AF2	2.73	1.01	0.03	0.18	6.60	0.0000	1.0000,NS
	Left knee	2.83	0.91	AT	2.83	0.91	0.00	0.00	0.00	0.0000	0.0000,NS
				AF1	2.77	1.01	0.07	0.25	8.95	1.3416	0.1797,NS
				AF2	2.77	1.01	0.07	0.25	8.95	1.3416	0.1797,NS

DISCUSSION

➤ Effect of Treatment on Sandhi Shoola

In the present study Matrabasti is taken for treatment here shoola is the main characteristic feature of vata dosha, To combat vata dosha matrabasti is adopted which does snehana, brihmana, shoolanashana.

The **Mahisha Majja** used as matrabasti having snigdha,ushna, guru, guna which are opposite to that of vatagunas. So it is having vata shamaka and vedana sthapaka effect.

Collagen which is present in joints is great for joints, six-month long study of athletes found that 10 grams of collagen a day was enough to decrease sports-related pain.

So in total, by the combined effect of procedure and drug, matrabasti proved to be effective on sandhi shoola parameter.

➤ Effect of Treatment on Prasarana Akunchana janya Vedana

According to Dalhana, Akunchanaprasaranaabhava is one of the lakshana in Sandhigatavata and

Nayachandrika mentioned it as Prasaranaakunchanaasamarthatha. In Sandhigatavata mainly due to vitiation of Vata dosha, movement of knee joint is impaired and restricted. Matrabasti with **Mahisha Majja** is snehaniya and Vatashamaka which helps to correct the Vata dosha and hence improve the movement of knee joint.

Niacin (also known as vitamin B3 or nicotinic acid) present in buffalo bone marrow, is one of the water-soluble B-complex vitamins that provides a range of health benefits, including reducing your level of “bad” LDL cholesterol while raising your level of “good” HDL cholesterol. The body uses niacin, as it does the other B vitamins, to convert food into energy

The study indicates that **Niacin amide** may have a role in the treatment of osteoarthritis. Niacinamide improved the global impact of osteoarthritis, improved joint flexibility, reduced inflammation, and allowed for reduction in standard anti-inflammatory medications when compared to placebo. More

extensive evaluation of niacinamide in arthritis is warranted.

➤ **Effect of Treatment on Sandhi sputana (Crepitation)**

Crepitation is grating sound, caused by bone rubbing against bone or roughened cartilage. Sandhisputana is due to absence of snehadravya in between two bones which is seen in the knee joint. The crepitations occur mainly due to Vata Vriddhi and Shleshaka Kapha Kshaya, and **Mahisha Majja** due to its Guru, Snighdha guna and Ushna Veerya and having brimhana property, thus helps in Asthi Poshana, improves the lubrication of synovial fluid and helps in reducing crepitations.

Selenium which is present in buffalo bone marrow is important in antioxidant defense and protect joints. Oxidative damage can destroy cartilage and harm joints and lead to crepitations, and selenium deficiency is implicated in several joint diseases, including osteoarthritis.

➤ **Effect of Treatment on Range of Motion using Goniometer**

Range of movements will mainly be restricted due to the reduction in Synovial fluid, degeneration of joint cartilage, And Mahisha Majja due to its properties like Guru, Snigha Guna helps in improving lubrication by Snehana action which makes the movements unrestricted. One more factor for restricted movements is pain, as pain will be reduced there will be free movements of Janu Sandhi.

➤ **Effect of Treatment on WOMAC index for Physical Function.**

According to National institute of Arthritis & Musculoskeletal & Skin disorder, OA of knee joint include stiffness and pain which make it hard to walk, climb, get in and out chair, which can lead to disability. All these parameters are considered under WOMAC Osteoarthritis index. The results were seen highly significant on these parameters.

➤ **Effect of Treatment on Radiological Findings.**

First report of buffalo bone marrow-derived mesenchymal stem cells (BM-MSCS), which suggests that MSCS can be derived and expanded from buffalo bone marrow and can be used after characterization as a novel agent for regenerative therapy.

As it is difficult to obtain structural changes with in the short period of treatment, still it is observed that difference in osteophytic changes in before treatment and after treatment X- Ray findings in 3 patients. Further if the research is carried out for long duration we may get statistically significant results in radiological findings also.

CONCLUSION

Janusandhigatavata is a Vatavyadhi, with the symptoms of Janu Sandhi Shoola, Janu Sandhi Shotha, Prasarana Akunchana Pravrutti Sa Vedana, and Atopa. Mahisha Majja has shown both clinically and statistically significant change in both subjective and objective parameters when tested by Wilcoxon matched pairs test and Paired t test. Mahisha Majja having the properties of guru, snighdha guna, ushna veerya, madhura rasa, brumhana karma helps in reducing the symptoms of Sandhigatavata and prevents further degeneration by action of Asthi Poshana.

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