



## Research Article

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### MARMA CHIKITSA IN MANAGEMENT OF JANU SANDHIGATAVATA: A PILOT STUDY

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#### ABSTRACT

Background: Janu Sandhigataavata is the most common articular disorder. It is a type of Vata vyadhi characterized by sandhi shotha (swelling), sphutan (crepitation), sandhi shool (joint pain), akunchana prasarana janyo vedana (pain on flexion and extension of the joints). It mainly occurs in vriddhavastha (old age) because all dhatus undergo kshaya, thus leading to Vataprakopa. The disease is in madhyama rogamarga, which involves the Marma, making it kashatasadhy vyadhi. Methodology: In this study, six patients aged between 35-60 years who complained of Osteoarthritis were selected randomly. Marma chikitsa was administered to all six patients on janu marma, indravasti marma, gulpha marma and kshipra marma for 21 days. Result: Significant improvement was observed in all the subjective parameters (sandhi shoola, sandhi shotha, graha, asahatvam, sphutan, akunchana prasarana janyo vedana) and objective parameters (range of motion, VAS scale, walking time) analyzed during the study. The mean values for all parameters consistently decreased throughout the study period. Conclusion: The present study illustrates the significant efficacy of marma chikitsa in the management of Janu Sandhigataavata (Knee osteoarthritis)

**Keywords:** Janu Sandhigataavata, Knee osteoarthritis, Marma Chikitsa, Pilot study

#### INTRODUCTION

Osteoarthritis (OA) is the most common articular disorder that results from the breakdown of joint cartilage and underlying bone.<sup>1,2</sup> It is characterized by progressive degradation of cartilage, joint pain, inflammation, and stiffness. It involves adjacent bones, ligaments, joint capsule, synovial membrane and peri-articular muscles. With ageing, rising obesity rates and lifestyle risk factors such as physical inactivity, its prevalence is increasing rapidly.<sup>3</sup> Osteoarthritis is the most prevalent form of arthritis, impacting approximately 237 million individuals or 3.3% of the population worldwide, as of 2015.<sup>4,5</sup> It becomes more prevalent with age.<sup>6</sup> In individuals over 60 years, approximately 10% of males and 18% of females are affected.<sup>7</sup> Osteoarthritis is a leading cause of disability and contributes to approximately 2% of the total years lived with disability.<sup>5</sup>

According to Ayurveda, Osteoarthritis can be correlated with Sandhigataavata, described under Vata vyadhis. Due to the aggravation of Vata, all dhatus undergo kshaya, making an individual prone to many diseases. The disease Sandhigataavata can be defined as a disease of sandhi (joint) with symptoms of sandhi shotha (swelling), which on palpation feels like a bag filled with air, sphutan (crepitation) and shool (pain) on prasarana and akunchana (pain on flexion and extension of the joints).<sup>8</sup>

Sandhigataavata mainly occurs due to dhatukshya or avarana, so general treatment of Vatavyadhi can be adopted; common treatments like snehana, svedana, mridu samshodhana, Basti and Vatahara aushadha, ahara and vihara may also be applicable in Sandhigataavata. As a specific line of treatment, Acharya Sushruta (Su. Chi. 4/8) and Acharya Vagbhata (A.S. Chi. 23/13, A.H. Chi. 21/19 and 22) have described snehana, upanaha, agnikarma, bandhana, mardana and svedana for the treatment of Sandhigataavata. Conventional treatment options like analgesics and anti-inflammatory drugs provide symptomatic relief but often come with side effects. Thus, there is a need for safe and effective alternative therapies to manage Osteoarthritis and improve patient quality of life. Therefore, the present study was conducted to assess the efficacy of marma chikitsa in the management of Janu Sandhigataavata (Osteoarthritis of the knee)

#### METHODOLOGY

##### Selection of Patients

This study was conducted as an open trial with a single group pilot study and was approved by the Institutional Ethical Committee (Klsgaci/IEC/2022/RS/42, Dated 12/01/2023) of Pt. Khushilal Sharma Government Ayurveda College and Hospital, Bhopal (M.P), India. Patients aged 35 to 60 years who met the diagnostic and inclusion criteria were selected through simple random

sampling from the outpatient and inpatient departments between January 2024 and March 2024. Out of 11 screened patients, 8 met the requirements and joined the study; however, two were left in between, so six patients completed the study. All the subjects were informed of the study objective and procedures, a consent form was signed, and a case history was taken for each subject. Patients were thoroughly questioned based on detailed clinical proforma. All the subjects underwent routine haematological examination (CBC, ESR) and biological investigations, such as random and postprandial blood sugar tests, to rule out any underlying pathology.

### Study Design

The present study is an experimental pilot study conducted in the Department of Rachna Sharir of Pt. Khushilal Sharma Govt. Ayurvedic College and Institute Bhopal, MP, India.

### Inclusion Criteria

The patients are between the ages of 35 and 60, irrespective of gender, religion, and socioeconomic status. Subjects having clinical features of Sandhigatavata as described in Ayurvedic classics, as well as clinical features of Osteoarthritis of the knee. Subjects who were willing to sign the Informed Consent form.

### Exclusion Criteria

Subjects under the age of 35 or over 60 and those with skin allergies, infections, or other systemic illnesses. Patients were diagnosed with different forms of arthritis, such as gouty arthritis, rheumatoid arthritis, or psoriatic arthritis. Additionally, individuals with diabetes, hypertension, or a history of using local anti-inflammatory medications were excluded. Those experiencing low backache with or without leg radiation, patients with metallic implants, or subjects with any deformity of the hip or back are also excluded. Pregnant or lactating women were excluded.

### The procedure of Marma Chikitsa

In the present study, marma chikitsa was administered to patients on janu marma, indravasti Marma, gulpha marma and kshipra Marma. Each sitting took approximately 5-6 minutes, with two sessions administered daily, making the total duration 10-12 minutes per day for 21 consecutive days. The procedure was divided into three phases: Poorva karma, Pradhana karma, and Pashchata karma.

#### a) Poorva Karma

Patients were briefed about the marma chikitsa procedure and obtained written consent. Pulse and blood pressure were measured before starting marma chikitsa. Additionally, knee pain and range of motion were assessed and recorded.

#### b) Pradhana Karma

The patient was positioned in the supine position on a hard bed with their hands placed on their body or at their sides.

### Method of Marma Chikitsa (Pressure Application)

A steady and moderate pressure was applied slowly and gently. The pressure was increased gradually depending on the patient's strength. The pressure was applied and released at a rhythm matching the heartbeat (0.8 seconds per cycle) using the tips of the fingers and thumb. The rhythm of stimulation was the same as the rhythm of respiration, which is approximately 18 times per minute. Each marma sthana was pressed 15 to 18 times. Thus, one

session of marma chikitsa took about 5-6 minutes, and two sessions were administered during the day.

#### c) Pashchata Karma

After marma chikitsa, patients were observed for 15-20 minutes.

### Assessment Criteria

The effect of therapies was evaluated under the following criteria. For facilitating statistical analysis according to the severity of symptoms, subjective and objective criteria scores were graded in Tables 1 and 2.

Table 1: Assessment Criteria of Subjective parameters<sup>10</sup>

Assessment Criteria of Subjective Parameters	Grade
<b>Sandhi Shoola</b>	
No pain	0
Mild Pain	1
Moderate pain without difficulty in walking	2
Moderate pain with difficulty in walking	3
Severe pain with difficulty in walking	4
<b>Sandhi Shotha</b>	
No Swelling	0
Slightly obvious	1
Covers well over the bony prominence	2
Marked and much elevated	3
Severe and very much elevated	4
<b>Sandhi Graha</b>	
No Stiffness	0
< 5 minutes	1
5 to 10 minutes	2
10 to 15 minutes	3
> 15 minutes	4
<b>Sandhi Sphutan</b>	
No Crepitus	0
Occasional Crepitus	1
Persistent and Palpable Crepitus	2
Persistent and Audible Crepitus	3
<b>Sparsha Asahyata</b>	
No tenderness	0
Patient say tenderness	1
Winching of face on touch	2
Does not allow to touch the joint	3
<b>Akunchan Prasaranjanyo Vedana</b>	
No pain	0
Pain without winching of face	1
Pain with winching of face	2
Prevent complete flexion	3
Does not allow passive movement	4

Table 2: Assessment Criteria of Objective parameters<sup>10</sup>

Assessment Criteria of Objective Parameters	Grade
<b>VAS Scale</b>	
VAS range in between 0-2	0
VAS range in between 2-4	1
VAS range in between 4-6	2
VAS range in between 6-8	3
VAS range in between 8-10	4
<b>Range of Motion (ROM)</b>	
Normal Flexion 130°	0
< 130° and 110°	1
< 110° and 90°	2
< 90° and 70°	3
< 70°	4
<b>Walking time to cover 21 m distance</b>	
Up to 20 s	0
21 to 30 s	1
31 to 40 s	2
41 to 50 s	3
51 to 60 s	4

Table 3: Overall Assessment Criteria <sup>10</sup>

Overall Assessment of Clinical Response	
100% improvement	Cured
> 75% improvement in overall clinical parameters	Very Good
> 50% to ≤ 75% improvement	Good
> 25% to ≤ 50% improvement	Moderate
≤ 25% improvement	Mild
Nothing has changed	No

**Treatment Protocol**

A total of six registered patients with Osteoarthritis of the knee were given Marma chikitsa. Marma chikitsa was administered to the patient on Janu Marma, Indravasti Marma, Gulpha Marma and Kshipra Marma. Each Marma Sthana was pressed for 0.8 seconds twice a day, and this intervention was administered for 21 days. Follow-up was conducted 7 days after the initiation of Marma chikitsa.

**STATISTICAL ANALYSIS**

For statistical analysis, the observations were recorded before and after treatment. The mean, mean difference, standard deviation, standard error, and paired t-test were applied. A value of p < 0.05 was considered statistically significant.

**OBSERVATION AND RESULT**

For all six patients who completed the study, the following observations were made before the study.

Among gender-wise distribution, 33.3% (n=2) male and 66.6% (n=4) female patients were present. A maximum of 50% (n=3) of patients were from the 46 to 55 years age group, followed by 33.3% (n=2) between the 35 to 45 years age group, while 16.6% (n=1) patients were from the 56-60 years age group. Education-wise, 66.6% (n=4) of patients graduated, followed by 33.3% (n=2) postgraduate. The socioeconomic status of a maximum of 50% (n=3) of patients was found to be middle class, followed by 33.3% (n=2) upper middle class, while 16.6% (n=1) belonged to the lower middle class. A maximum of 50% (n=3) of patients were homemakers; 33.3% (n=2) patients belonged to the service class, followed by 16.6% (n=1) patients belonging to the business class.

All the patients were vegetarians. A maximum of 6.6% (n=4) the percentage of patients had Vata-Pittaja prakruti (body constitution), while 33.3% (n=2) participants had each Pitta-Kaphaja prakruti and Vata-Kaphaja prakruti. Jatharagni (digestive fire) was samagni in the maximum percentage of patients (66.6%). Koshtha was krura in a maximum of 66.6% (n=4) of patients, followed by 33.3% (n=2) of madhyam koshtha and mridu koshtha in 16.6% (n=1) patients.

Table 4: Result

Symptoms	Mean		Difference	% of relief	SD	SE	T	P	Result
	BT	AT							
Sandhi Shoola	2.16	0.66	1.50	69.4%	0.81	0.33	6.708	0.0011	Very significant
Sandhi Shoth	2.00	0.66	1.33	66.5%	0.51	0.21	6.325	0.0015	Very significant
Sandhi Graha	1.50	0.83	0.66	44.4%	0.75	0.30	3.162	0.0250	Significant
Sandhi Sphutan	1.66	1	0.66	39.7%	0.63	0.25	3.162	0.0250	Significant
Sparsh Asahyata	2.00	1	1.00	50%	0.63	0.25	3.873	0.0117	Significant
Akunchan Prasaranjano Vedana	2.16	0.83	1.33	63.3%	0.40	0.16	6.325	0.0015	Very significant
Range of Motion (Flexion)	2.00	1.00	1.00	50%	0.63	0.25	3.873	0.0117	Significant
Walking time to cover 21 m distance	2.00	1.16	0.83	41.5%	0.98	0.40	5.000	0.0041	Very significant
VAS Scale	2.00	0.66	1.33	66.5%	0.81	0.33	6.325	0.0015	Very significant

BT: Before Treatment, AT: After Treatment

Table 5: Overall assessment of the intervention

Overall assessment	Percentage Relief	No. of Patients	Percentage
Complete relief	100%	00	0%
Marked improvement	>75%	1	16.6%
Moderate improvement	>50%	4	66.6%
Mild improvement	>25%	1	16.6%
No improvement	00%	0	0%

**DISCUSSION**

The pilot study evaluated marma chikitsa's efficacy in managing Janu Sandhigatavata (Osteoarthritis of the knee). Osteoarthritis is a degenerative joint condition that significantly impacts the quality of life, particularly in older people. It is characterized by the gradual deterioration of cartilage, leading to pain, stiffness, and reduced mobility. Conventional treatments often focus on symptom management, such as pain relief and improved mobility, but often have side effects. As a result, there is a need for safe and effective alternative therapies to manage Osteoarthritis and enhance patient quality of life. Marma chikitsa stimulates specific vital points on the body known as "Marmas." Applying targeted pressure on these Marma sthana

regulates the flow of prana, restores balance and promotes healing.

**Effect of Marma Chikitsa on Cardinal Symptoms**

Sandhi shoola (pain) is the main symptom of Janu Sandhigatavata. In the present study, the mean shoola (pain) score before treatment was 2.156, which lowered to 0.66 after treatment, with a relief of 69.4%, which was statistically very significant with p=0.0011 (Table 4). As per Ayurveda, 'pain cannot occur without the involvement of Vata dosha'.<sup>10</sup> So stimulating Marmas reduces the pain by balancing the Vyana Vayu and Vata dosha <sup>11</sup>; therefore, their stimulation may balance the vitiated Vata, leading to therapeutic benefits.

Sandhi shotha (swelling) is another critical symptom of Janu Sandhigatavata. The mean score of sandhi shotha (swelling) before treatment was 2, which lowered to 0.66 after treatment, with a relief of 66.5%, which was statistically very significant with  $p=0.0015$  (Table 4). The proper stimulation of Marmas helps remove blockages by regulating the flow of prana. This may have helped with the reduction of shotha (swelling). The stimulation of these Marmas may balance the Kapha<sup>11</sup> leading to therapeutic benefits.

In the present study, the mean score of sandhi graha (stiffness) before treatment was 1.50, which lowered to 0.83 after treatment, with a relief of 44.4%, statistically significant with  $p=0.0250$  (Table 4). Due to the ruksha (dry) and sheeta (cold) guna (properties) of Vata dosha, it might produce stambha (stiffness).<sup>12</sup> The stiffness can also lead to the blockage in the movement of prana at that location; since Marma chikitsa regulates the proper flow of prana, it must have contributed to the removal of blockages,<sup>11</sup> resulting in the reduction of sandhi graha (stiffness).

Akunchana prasaranajanya vedana is also an important symptom of Janu Sandhigatavata; however, this symptom is not normally seen in the early stages. In the present study, the mean score of akunchana prasaranajanya vedana (restriction of movement) before treatment was 2.16, which lowered down to 0.83 after treatment, with a relief of 63.3%, which was statistically very significant with  $p=0.0015$  (Table 4). Due to the ruksha (dry) and sheeta (cold) guna (properties) of Vata dosha, it might produce stambha (stiffness), which could cause restriction of movement of the knee joint.<sup>12</sup> Therefore, stimulating these Marmas may help remove blockage in the movement of prana at that location, resulting in better ROM.

In the present study, the mean score of sandhi sphutan (crepitus) before treatment was 1.66, which lowered to 1 after treatment, with a relief of 39.7%, statistically significant with  $p=0.0250$  (Table 4). Vata vriddhi (increase) and sthanika Kapha Kshaya (depletion of local Kapha) are the main reasons for sphutan (crepitus). Since Marma therapy can help balance the Vata dosha,<sup>11</sup> additionally regulates the proper flow of prana. Hence, it must have helped reduce sphutan (crepitus).

The knee is the weight-bearing joint of the body, and it is significantly affected by patients in Janu Sandhigatavata. Pain and stiffness in the joint can be the main reason for difficulty in walking. As the pain and stiffness diminish, walking becomes easier. In the present study, the mean score of walking time to cover 21 m distance before treatment was 2, which lowered to 1.16 after treatment, with a relief of 41.5%, which was statistically very significant with  $p=0.0041$  (Table 4).

Knee joints support weight, facilitate physical activity and exhibit a specific range of motion during movement. During the development of osteoarthritis, the entire joint organ is impacted, including articular cartilage, subchondral bone, synovial tissue, ligaments, and menisci, resulting in a decreased range of motion.<sup>13</sup> In the present study, the mean range of motion (flexion) score before treatment was 2, which was lowered to 1 after treatment, with a relief of 50%, which was statistically significant at  $p=0.0117$  (Table 4).

The VAS scale is a reliable and validated tool for assessing pain intensity.<sup>14</sup> In the present study, the mean score for the VAS scale before treatment was 2, lowered to 0.66 after treatment, with a relief of 66.5%, statistically very significant at  $p=0.0015$  (Table 4).

## CONCLUSION

The primary objective of this pilot study was to evaluate the efficacy of Marma chikitsa in the management of Janu Sandhigatavata (Osteoarthritis of the knee). It was achieved through a structured methodology involving regular Marma chikitsa sessions and periodic subjective and objective outcomes assessments. Significant improvements were observed in pain relief, knee flexibility, joint stiffness, and tenderness. There is a continuous decrease in the values of all the subjective and objective parameters with time, even during the follow-up period. Although this pilot study had a small sample size, the level of relief experienced by all the patients is remarkable. Marma chikitsa requires no hospitalization and can be done at the OPD level. Therefore, after statistical and clinical analysis, it can be concluded that Marma chikitsa is effectively significant in managing Janu Sandhigatavata.

## Limitation of Study

- The study was conducted on a small sample (6 patients), limiting the findings' generalizability.
- The study lacks a follow-up period after the treatment ended, making assessing symptoms' long-term effectiveness and relapse rate challenging.

## Further Scope of Study

- Conducting a randomized controlled trial with a control group could strengthen the evidence for the efficacy of Marma chikitsa.
- A detailed study on a large sample size should be conducted to evaluate the efficacy of Marma chikitsa in the management of Janu Sandhigatavata.

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