

# Clinical and Radiological Resolution of Grade-III Knee Osteoarthritis through Panchakarma: A Case Report

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## ABSTRACT

Knee Osteoarthritis (KOA), commonly referred to as degenerative joint disease, generally arises from the gradual deterioration and progressive depletion of articular cartilage. Conventional treatment including NSAID's and surgical options which makes patients to turn to explore ayurveda treatments. In Ayurveda KneeOsteoarthritis (KOA) is understood as Janu Sandhigata Vata, resulting from imbalance in vata and kapha. A 64-year-old patient reported experiencing pain in both knees after surgical correction advise by conventional medicine. She had Knee pain score (VAS) 8, bulge test- positive, knee flexion- 60° with pain and marked reduced knee joint space with cartilage damage, subchondral sclerosis and osteophytes. Clinical and Radiological resolution of Grade III knee Osteoarthritis through panchakarma therapies, oral formulations and knee exercises. This prospective case study examined a diagnosed Grade III Knee Osteoarthritis (KOA) patient underwent a one year of treatment. The protocol included Panchakarma therapies (Upanaha, Janu Basti, Panchatikta Basti and Abhyanga Patra Pinda sweda) and Ayurvedic oral medications along with knee exercises. The Visual Analog Scale (VAS), Knee Range of Movements, WHOQOL-BREF Scale were assessed every 90 days over one year. Knee X-Ray was taken after a year. Patient showed satisfactory outcomes without any adverse effects. The Visual Analog Scale improved from 8 to 2, and significant changes were noted in the WHOQOL-BREF Scale along with the range of motion (flexion increased from 60° to 110° in both limbs) and a negative bulge test. Consistent and satisfactory improvements were observed after each follow-up, later after one year, X-ray showed increased knee joint space and reduced subchondral sclerosis. This study provides evidence that Upanaha, Janu Basti, Panchatikta Basti and Abhyanga Patra Pinda sweda over a year of period may successfully resolve Janu Sandhi Gata Vata (Grade-III Knee Osteoarthritis).

**Keywords:** Janu Sandhigatavata, Grade-III Knee Osteoarthritis, Panchakarma Therapies, Knee X-ray.

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## INTRODUCTION

Osteoarthritis (OA) ranks among the most common debilitating joint disorders, surpassing even Rheumatoid Arthritis (RA) and other joint disorders.<sup>[1]</sup> The incidence of OA is anticipated to increase in tandem with the rising population of individuals aged 60 and above, as well as the escalating rates of obesity globally.<sup>[2]</sup> The elderly population is particularly vulnerable to this condition due to the cumulative deterioration of their joints over time. Furthermore, the body's capacity to repair and regenerate joint tissues declines with age, which accelerates the development of osteoarthritis in older individuals. Comorbidities such as obesity, diabetes, and cardiovascular diseases further intensify the symptoms and progression of knee osteoarthritis. It is marked

by the progressive deterioration of articular cartilage, which encompasses the synovium,<sup>[3]</sup> meniscus (specifically in the knee), periarticular ligaments, and subchondral bone.<sup>[4]</sup> The symptoms of OA correspond with those of Sandhigata Vata as outlined in Vatavyadhi. Acharya Charaka was the first to document Sandhivata, or Sandhigata Anila, which is identified by Shotha (swelling), accompanied by Shula (pain) during Prasarana and Akunchana (flexion and extension of the joints).<sup>[5]</sup> Sushruta Acharya has described the symptoms of the disease as sotha and shula, leading to the degeneration and limited movement of the affected joint.<sup>[6]</sup> Among the laghutrayees, Acharya Madhavakara describes Atopa (crepitus in the joint) as another clinical manifestation.<sup>[7]</sup>

The underlying pathology of this condition is attributed to the imbalance of Vata and Kapha Dosha, which affects the Asthi (bones), Sandhi (joints), Mamsa (muscles), and Snayu (ligaments). The Ayurvedic approach to managing this ailment involves a meticulous combination of Bahya Chikitsa (external therapies) and Abhyantara Chikitsa (internal treatments). Bahya



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Chikitsa encompasses therapies such as Janu Basti, Abhyanga (massage), Jalaukavacharana (leech therapy), and Agnikarma (cauterization). Abhyantara Chikitsa consists of internal medications, including Churna (herbal powder), Kashaya (decoction), and Vati (pills).<sup>[8]</sup> A case of KOA was addressed through a comprehensive Ayurvedic protocol that incorporates both Panchakarma therapies, oral medications along with knee exercises.<sup>[9]</sup>

### Patient Information

A 64-year-old female homemaker reported experiencing progressively worsening bilateral knee joint pain over the past two years, accompanied by low back pain for the last year. Initially, the knee pain was mild and intermittent; however, despite regular use of anti-inflammatory and analgesic medications, the pain intensified over time, resulting in severe discomfort that hindered her ability to stand or walk, thereby disrupting her daily activities and negatively affecting her psychological well-being. The patient also experienced additional symptoms such as generalized body aches, insomnia, and anxiety regarding her dependence on others for daily tasks, which further diminished her quality of life.

Although her initial discomfort required minimal medication, the increasing pain led her to use anti-inflammatory drugs 3-4 times a week, providing only partial relief. Frustrated with the limited success of conventional treatments and unwilling to consider surgical options, she explored integrative medicine alternatives, including Ayurvedic therapies and knee exercises, for a more holistic approach to symptom management.

### Clinical Findings

During the physical examination, the Visual Analog Scale (VAS) recorded a score of 8, with a positive bulge test observed in both knee joints. The knee flexion was measured at 60 degrees, indicating potential degenerative changes in the joints. The WHOQOL-BREF scale results revealed scores of 19 for Physical health, 34 for psychological health, 55 for social relationships, and 63 for Environment, reflecting the impact of Knee Osteoarthritis (KOA) on the patient's overall wellbeing. An X-ray of the bilateral knee joints demonstrated significantly reduced joint space, along with cartilage deterioration, subchondral sclerosis, and the presence of osteophytes, consistent with Grade III KOA.

### Timeline

Table 1 illustrates the chronological sequence of events, including clinical findings, interventions, duration, and relevant parameter assessments for the case. The patient had been using painkillers and anti-inflammatory medications intermittently for two years prior to commencing Ayurvedic treatment, as recommended by a family physician. The initiation of Ayurvedic treatment occurred on April 14, 2023.

### Diagnostic Assessment

The assessment was done prior to and following treatment, utilizing clinical signs and symptoms of KOA as per the Kellgren and Lawrence classification, the WHOQOL-BREF scale, and X-ray findings, which serve as the primary diagnostic tool for KOA.

### Therapeutic Interventions

In this instance, as degenerative changes are impacting all joints throughout the body, a treatment protocol was established to focus on joint nourishment, anti-degenerative strategies, and external methods designed to strengthen supportive joint structures and enhance overall joint functionality. Initially, the patient received kinwa upanaha, utilizing kinwa of amrutarishta. The application of upanaha, a type of medicated poultice, is classified as one of the four primary categories of swedana therapies, which alleviates pain, limited mobility, and stiffness.<sup>[10]</sup> The patient underwent Panchatikta Niruha Basti and Panchatikta Ksheera Basti<sup>[11]</sup> for a duration of nine days, along with matra basti using Guggulu Tiktaka Ghrita for two sessions. Matra Basti is a form of Anuvasan Basti employed for various degenerative conditions,<sup>[12]</sup> in conjunction with janu basti using mahanarayana taila for three sessions over seven days. The patient was consistently encouraged to engage in knee exercises, walking, and to attend treatment follow-ups.

### Follow-Up and Outcome

The patient was advised to attend follow-up consultations every 30 days throughout the treatment year. During this time, a significant reduction in symptoms such as joint pain, stiffness, and sleep disturbances was noted (see Tables 1 and 2). Additionally, the patient indicated a decrease in body aches and fatigue, suggesting an improvement in joint health and metabolic function. The enhancement in the patient's quality of life, marked by better joint functionality and decreased reliance on anti-inflammatory medications, highlights the potential of Ayurveda as an adjunct therapy for Janu Sandhigata Vata (KOA). X-ray results demonstrated an increase in joint space and a normal joint line. These findings indicate a positive response to treatment and a reversal of the joint degeneration process.

### DISCUSSION

The management of Janusandhigata Vata includes therapies such as Basti, Abhyanga, Swedana, Lepa, and Shamana medications. These treatments effectively address the vitiated Dosha-Dushya and help halt the progression of the disease, thereby achieving Samprapti Vighatana. According to Ayurveda, Snehana and Swedana are the primary approaches in managing any Vata Vyadhi. Sarvaga Abhyanga was chosen for the patient as it aids in reducing tissue adhesion, enhancing the range of motion in the knee joint, and alleviating muscle tension and spasms.<sup>[13]</sup> The

**Table 1: The timeline of events (clinical findings, interventions, duration, and corresponding parameter assessments).**

Date	Presentation during visit	Intervention/procedure	Duration	Assessments																											
14 <sup>th</sup> -23 <sup>th</sup> April 2023	-Bilateral knee joint pain and low back pain -Unable to perform daily activities because of pain -Insomnia.	Panchakarma: Kinwa lepa ( <i>kinwa of amrutarishta</i> ) for 7 days. Sarvanga Patra Pinda Sweda for 7 days. Panchatikta Niruha basti (kala basti pattern). Anuvasana basti with Guggulu tiktaka ghrita-80 mL. <table><tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td></tr><tr><td>A</td><td>N</td><td>N</td><td>N</td><td>N</td><td>N</td><td>N</td><td>A</td><td>A</td></tr><tr><td></td><td>A</td><td>A</td><td>A</td><td>A</td><td>A</td><td>A</td><td></td><td></td></tr></table>	1	2	3	4	5	6	7	8	9	A	N	N	N	N	N	N	A	A		A	A	A	A	A	A			10 Days	-VAS- 8, -Bulge test- positive, -ROM: flexion- 60° with pain.
1	2	3	4	5	6	7	8	9																							
A	N	N	N	N	N	N	A	A																							
	A	A	A	A	A	A																									
24 <sup>th</sup> April 2023	-Patient was able to walk and perform her daily activities.	Gokshuradi guggulu 1 mg 2 bd mention in mg. Rasna eranadai Kashaya 15 mL tid with w/w. Nirgundi taila-external application.	30 Days	-VAS- 6 -Bulge test- negative, -ROM: flexion- 90° with mild pain -Improved sleep																											
22 <sup>nd</sup> -28 <sup>th</sup> May 2023	-Bilateral knee joint pain persists.	Panchakarma: Janu basti with mahanarayana taila for 7 days. Sarvanga abhyanga with mahanarayan taila f/b bashpa sweda for 7 days. Matra basti with guggulu tiktaka ghrita 50 mL for 7 days.	7 Days	-VAS- 4 -Bulge test- negative, ROM: flexion- 90°without pain.																											
16 <sup>th</sup> August 2023	No fresh complaints, pain in bilateral knee joints.	Guggulu Tiktaka capsule 1 mg bd with 100 mL warm milk Nirgundi taila- local application Static knee exercises 15-30 min walking.	30 Days	-VAS- 4 -Knee Flexion- 90° without pain.																											
20 <sup>th</sup> to 28 <sup>th</sup> November 2023	Pain in bilateral knee persist on walking long distance, climbing stairs.	Panchakarma: Janu basti with mahanarayana taila for 9 days. Sarvanga abhyanga eith mahanarayana taila f/b bashpa sweda for 9 days. Panchatikta ksheera basti Anuvasana basti with guggulu tiktaka ghrita 80 mL. <table><tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td></tr><tr><td>A</td><td>N</td><td>A</td><td>N</td><td>A</td><td>N</td><td>A</td><td>N</td><td>A</td></tr></table>	1	2	3	4	5	6	7	8	9	A	N	A	N	A	N	A	N	A	9 Days	-VAS- 4 -Knee Flexion- 100° without pain.									
1	2	3	4	5	6	7	8	9																							
A	N	A	N	A	N	A	N	A																							
29 <sup>th</sup> November 2023	Pain in knee joint reduced, no pain in knee while walking.	Guggulu Tiktaka Ghrita capsule 1 od with 100 mL warm milk. Nirgundi taila-local application Static knee exercises 30 min walking.	30 Days	-VAS- 4 -Knee Flexion- 100° without pain.																											
16 <sup>th</sup> February 2024	Pain in b/l knee joint present.	Panchakarma: Janu basti with mahanarayana taila for 7 days. Matra basti with Guggulu tiktaka ghrita 50 mL for days.	7 Days	-VAS- 2 -Knee Flexion- 110° without pain.																											

23 <sup>rd</sup> April 2024		Guggulu tiktaka capsule 1 mg bd with 100 mL warm water was advised for 1 month.	30 Days	-VAS- 2 -Knee Flexion- 110° without pain - Knee X-Ray -Improved joint space -Reduced synovial destruction, joint lines look healthy.
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**Table 2: WHOQOL-BREF scale assessment.**

14 <sup>th</sup> April 2023	29 <sup>th</sup> November 2023	23 <sup>rd</sup> April 2024
Physical health: 19/100	Physical health: 65/100	Physical health: 78/100
Psychological: 34/100	Psychological: 63/100	Psychological: 85/100
Social relationships: 55/100	Social relationships: 75/100	Social relationships: 75/100
Environment: 63/100	Environment: 69/100	Environment: 75/100

oil utilized for Abhyanga was Mahanarayana Taila, selected for its Rasa Panchaka, which may assist in managing the symptoms associated with osteoarthritis. Mahanarayana Taila has herbs, including Ashwagandha (*Withania somnifera*), Jatamansi (*Nordostachys jatamansi*), Rasna (*Pluchea lanceolata*), Karanj (*Pongamia pinnata*), and Vacha (*Acorus calamus*). The distinctive characteristics of these herbs enhance the effectiveness of this treatment due to their Santarpan qualities. Its Katu and Tikta Rasa, Laghu and Ruksha Guna, Ushna Virya, and Katu Vipaka, along with its Vata-Kapha-samak property, promotes actions such as Deepana, Pachana, and Srotoshodhana, thereby aiding in Amapachana and Vatakaphasamana effects. Mahanarayana Taila is extensively utilized in the management of all Vata Vyadhis.<sup>[14]</sup>

Swedana modalities, including patra pinda sweda, kinwa lepa, and janu basti. Swedana is beneficial for improving blood circulation, alleviating stiffness, and relieving pain. The therapeutic properties of the patras utilized in patra pinda sweda, along with the kinwa from amrutarishta used in kinwa lepa, contribute to reducing shotha and enhancing joint mobility. Basti is regarded as the most effective treatment for any vata vyadhi.<sup>[15]</sup> Tikta Rasa Yukta Basti is recommended for Asthigatavikaras. In this instance, during the initial IPD course, Panchatiktaka Basti was administered. This formulation contains ingredients such as Nimba, which is abundant in calcium and phosphorus and possesses analgesic properties. Patola offers anti-inflammatory benefits, while Guduchi, recognized for its Kashaya rasa, aids in digestion, mitigates Vata, and improves absorption. Vasa and Kantakari also provide anti-arthritic and anti-inflammatory effects, making them advantageous for treatment.

In the second and third course was modified to Panchatikta Ksheera Basti. Ksheera is essential due to its properties, such as Madhura Rasa and Snigdha Guna, which aid in balancing the Vata dosha. Additionally, it exhibits a nourishing effect on the

dhatus. Ksheera is recognized for its rejuvenating, restorative, and universal healing properties, and it is a rich source of calcium. The combination of Ksheera, Ghrita, and Tikta Dravyas in Siddha Basti is effective for Vata balancing and supporting Asthi Dhatu.<sup>[16]</sup> For the anuvasana basti, Guggulu Tiktaka Ghrita was chosen. Guggulu, with its heating properties, is a potent Vata pacifying substance. Its dry and clear characteristics contribute to its efficacy in fat reduction. Guggulu possesses anti-inflammatory, immunomodulatory, and anti-lipid properties. The overall impact of Guggulu Tiktaka Ghrita is attributed to its heating potency, which effectively mitigates aggravated Vata and alleviates pain.<sup>[17]</sup> Engaging in static exercises can improve the range of motion in joints. It is recommended that sustained exposure to consistent stretching at a specific tension level may lead to an increase in the number of sarcomeres in muscle, thereby enhancing flexibility and joint mobility.<sup>[18]</sup>

Rasna Erandadi Kashaya<sup>[19]</sup> has antioxidant and anti-inflammatory properties, as enzymatic or free radical damage to proteins such as IgG or collagen is also regarded as a potential factor contributing to chronic joint inflammation, localized cartilage and bone destruction, as well as systemic manifestations in arthritis.<sup>[20]</sup> Gokshuradi guggulu is an effective blend of vedanasthapan, shothaghna, deepana, and amapachak substances. The combination of guduchi, triphala, guggulu, and trikatu, known for their tridosha balancing properties, particularly vatanashak, rasayana, and balya raktprasadaka, contributes to the maintenance of homeostasis in both dhatus and doshas.<sup>[21]</sup>

## CONCLUSION

*Janusandhigata Vata* is a prevalent degenerative condition primarily affecting the elderly. In this case, the Ayurvedic treatment approach incorporated both panchakarma and oral formulations resulted in significant improvements in the overall health of the knee joint which was evident in X-Ray.



## ACKNOWLEDGEMENT

We acknowledge patient for continuous support throughout the treatment.

## CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

## ABBREVIATIONS

**KOA:** Knee Osteoarthritis; **VAS:** Visual Analogue Scale; **WHOQOL-BREF:** WHO quality of Life; **ROM:** Range of Movements; **BD:** Two Times a Day.

## PATIENT CONSENT DECLARATION

The authors affirm that a signed patient consent form has been obtained, wherein the caretaker has permitted for the publication of the case report and supplementary clinical details in the journal. The patient is aware that their name and initials will remain confidential, and necessary precautions will be implemented to protect their identity; nevertheless, complete anonymity cannot be guaranteed.

## SUMMARY

Knee Osteoarthritis is a degenerative inflammatory joint condition prevalent among the elderly, significantly impacting their quality of life. A case of Grade III Knee OA was successfully treated using Panchakarma therapies, including Abhyanga (oil massage), Patra Pinda Sweda (sudation therapy), Upanaha (poultice), Janu Basti (local oil pooling), Basti (medicated enema), and oral formulations, in conjunction with exercises. This approach demonstrated notable subjective and radiological improvements, thereby affirming the efficacy of Ayurveda in managing degenerative joint diseases.

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