

## REJUVENATING KNEE JOINT: AN AYURVEDIC CASE REPORT ON KNEE OSTEOARTHRITIS MANAGEMENT

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### ABSTRACT

This case study showed efficacy of Ayurvedic interventions in the treatment of Janu sandhi gata vata (Knee osteoarthritis), where the knee joints showed advanced bilateral osteoarthritic changes radiologically. A 64-year-old patient presented with complaints of pain in both knee joints as well as low back pain. This case was diagnosed as B/L knee osteoarthritis based on the X-ray findings. The patient underwent Panchakarma procedures and Ayurvedic oral medications and got satisfactory results without side effects. The visual analog scale (from 8 to 2), Significant changes were observed in the BREF Scale, ROM (Flexion improved from 90° to 110° in bilateral limbs) and negative bulge test. Justifiable and satisfactory improvement was noted after each follow-up and after 1 year X-ray showed a reduction in the disease as well and further progression of the disease was controlled. After the treatment course, the knee pain was completely resolved during the walking or on rest, this study generates evidence that Janu Sandhigatavata (Knee osteoarthritis) successfully treated with the Ayurvedic treatment principles.

**Keywords-** Geriatrics, Janu sandhigatavata, Knee Osteoarthritis, Case report, Knee X-ray.

### INTRODUCTION

Osteoarthritis (OA) is considered one of the most common disabling forms of joint disease, even more common than that of rheumatoid arthritis (RA) and other forms of joint disorder.<sup>[1]</sup> The prevalence of OA is expected to rise alongside the growing number of people aged 60 and older and the increasing rates of obesity worldwide.<sup>[2]</sup> The elderly are especially susceptible to this condition due to the cumulative wear and tear on their joints over time. Additionally, the body's ability to repair and

regenerate joint tissues diminishes with age, contributing to the progression of osteoarthritis in older adults. Comorbidities, such as obesity, diabetes, and cardiovascular diseases, further exacerbate the symptoms and progression of knee osteoarthritis. OA, also referred to as osteoarthrosis or degenerative joint disease, is a condition that affects synovial joints.<sup>[3]</sup> It is marked by the gradual loss of articular cartilage, along with structural and functional alterations in the entire joint, including the synovium, meniscus (in the knee), periarticular ligaments, and subchondral bone.<sup>[4]</sup> The symptoms of OA align with those of *Sandhigata Vata* as described in *Vatavyadhi*. Acharya Charaka was the first to describe *Sandhivata*, or *Sandhigata Anila*, which is characterized by *Shotha* (~swelling) that feels like a bag filled with air upon palpation, along with *Shula* (~pain) during *Prasarana and Akunchana* (~ flexion and extension of the joints).<sup>[5]</sup> Sushruta Acharya has described the disease symptoms as *sotha* and *shula*, leading to the degeneration and restricted movement of the involved joint.<sup>[6]</sup> Among the *laghutrayees*, Acharya Madhavakara explains *Atopa* (~crepitus in joint) as another clinical presentation.<sup>[7]</sup> The pathological basis of this disease is addressed as the imbalance of Vata and Kapha Dosha, which impacts the *Asthi* (~bones), *Sandhi* (~ joints), *Mamsa* (~muscles), and *Snayu* (~ligaments). Ayurvedic management of this condition includes a careful blend of *Bahya Chikitsa* (~ external therapies) and *Abhyantara Chikitsa* (~internal treatments). *Bahya Chikitsa* includes therapies such as *Janu Basti*, *Abhyanga* (~massage), *Jalaukavacharana* (~leech therapy), *Agnikarma* (~cauterization). *Abhyantara Chikitsa* involves internal medications, including *Churna* (~herbal powder), *Kashaya* (~decoction), and *Vati* (~pills).<sup>[8]</sup> A case of *Janusandhigata vata* (~knee osteoarthritis) is treated with a comprehensive Ayurveda protocol which included both *sodhana* (~Panchakarma principles) and *shamana chikitsa* (~Oral medications) along with knee exercise.

### PATIENT INFORMATION

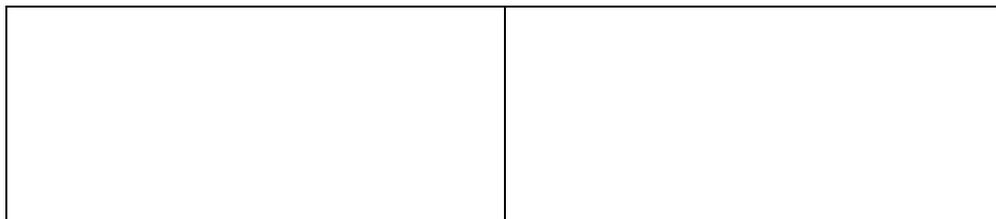
A 64-year-old female home maker visited the Panchakarma OPD at KLE Ayurveda Hospital, Belagavi, with complaints of bilateral knee joint pain for the past one year and lower back pain for the past six months. She also reported disturbed sleep, irritability, and fatigue over the last six months. Additionally, she mentioned a weight gain of 5 kg in the past year. The pain in her bilateral knees has worsened over the last two months making it difficult for her to perform daily activities. Patient experienced transient reduction in symptoms on taking allopathy medicines, but symptoms relapsed on stopping the medicine. All along the course she was intervened with both *shodhana* and *shamana* along with *Pathya*.

### CLINICAL FINDINGS

Patient was examined on the basis of *Ashtavidha stana pariksha* and General examination. [Table no 1]

**Table 1: Findings of ashtavidha stana pariksha and general examination**

Ashtavidha stana pariksha	General Examination
Nadi(~pulse): Vata- kaphaja	Pulse: 80bpm
Mala(~stool): Sama (~sticky stool)	Blood Pressure: 130/90 mm of Hg
Mutra(~urine): Anavila (~normal)	Respiratory rate: 16 breathes/min
Jihwa(~ tongue) : Lipta (~coated)	Bowel habit: twice/day
Shabda (~sound): Spastha (clear voice)	Micturition: 6 -7 times/ day
Sparsha (~touch): Anushnashita (~neither hot nor cold )	Appetite: Good
Drik (~eyes): Samanya (~normal)	Sleep: Reduced
Akruti (~built): Pravara (~obese)	Temperature: Afebrile
	Weight – 82kg



**DIAGNOSTIC ASSESSMENT**

X-ray findings dated 16/02/2023 were suggestive of bilateral advanced osteo-arthritic changes which showed reduced joint space on both side and few osteophytic outgrowths along with few subchondral bone cysts.

Case was diagnosed as Grade-II knee osteoarthritis based on clinical assessment and x-ray findings of bilateral knee.

**THERAPEUTIC INTERVENTION**

Patient was treated based on treatment modalities mentioned in *asthi aashyra vata* which includes *nidana parivarjana*, *Shodhana chikitsa* like *Abhyanga*, *swedana*, *basti*, *lepa*, *janu basti* along with *shamana* medications. [ Table no 2]’

**Table no 2: Timeline of case: (A- Anuvasana Basti, N- Niruha Basti)**

Dae	Clinical events/Investigations	Intervention /procedure																														
14 <sup>th</sup> – 23 <sup>th</sup> April 2023	<p>C/o bilateral knee joint pain and low back pain Unable to perform daily activities because of pain c/o fatigue, irritability</p> <p>O/E- VAS- 8, bulge test- positive, ROM: flexion- 90° with pain</p> <p>The patient was admitted in the I.P.D of Kle Ayurveda Mahavidyalaya for treatment</p>	<p>Panchakarma:</p> <ul style="list-style-type: none"> <li>• Kinwa lepa (<i>kinwa of amrutarishta</i>)for 7 days</li> <li>• Sarvanga Patra Pinda Sweda for 7 days</li> <li>• Panchatikta Niruha basti (kala basti pattern)</li> <li>• Anuvasana basti with Guggulu tiktaka ghrita- 80ml</li> </ul> <table border="1" style="width: 100%; height: 30px;"> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> </table> <p>Shamana Aushadis:</p> <ul style="list-style-type: none"> <li>• Gokshuradi guggulu 1mg 2 bd mention in mg</li> <li>• Rasna eranadai Kashaya 15ml tid with w/w</li> <li>• Nirgundi taila – external application</li> </ul>																														

24 <sup>th</sup> April 2023	Discharged from hospital Pain in bilateral knees reduced slightly, Patient was able to walk and perform her daily activities  O/E- VAS- 4, bulge test- negative, ROM: flexion- 110° with mild pain	The same Shamana medications were advised for 1 month										
22 <sup>nd</sup> – 28 <sup>th</sup> May 2023	Only Bilateral knee joint pain persist  O/E- VAS- 4, bulge test- negative, ROM: flexion- 110° without pain  Took treatment on OPD basis for 7 days	Panchakarma: <ul style="list-style-type: none"> <li>• Janu basti with mahanarayana taila for 7 days</li> <li>• Sarvanga abhyanga with mahanarayan taila f/b bashpa sweda for 7 days</li> <li>• Matra basti with guggulu tiktaka ghrita 50ml for 7 days</li> </ul> Shamana Aushadis: <ul style="list-style-type: none"> <li>• Guggulu Tiktaka capsule 1mg bd with 100ml warm milk</li> <li>• Nirgundi taila- local application</li> </ul> Static knee exercises 15-30 minutes walking										
16 <sup>th</sup> August 2023	Patient came for follow-up No fresh complaints, pain in bilateral knee reduced 40%  O/E- VAS- 4, bulge test- negative, ROM: flexion- 110° without pain	Continued same Shamana Aushadis for 1 month Static knee exercises										
20 <sup>th</sup> to 28 <sup>th</sup> November 2023	Came for follow- up Pain in bilateral knee persist on walking long distance, climbing stairs  O/E- VAS- 4, bulge test- positive, ROM: flexion-100° with pain  The patient was re-admitted in the I.P.D of Kle Ayurveda Mahavidyalaya for 9 days	Panchakarma: <ul style="list-style-type: none"> <li>• Janu basti with mahanarayana taila for 9 days</li> <li>• Sarvanga abhyanga eith mahanarayana taila f/b bashpa sweda for 9 days</li> <li>• Panchatikta ksheera basti</li> <li>• Anuvasana basti with guggulu tiktaka ghrita 80ml</li> </ul> <table border="1" style="width: 100%; height: 20px;"> <tr> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> </table> Shamana Aushadis: <ul style="list-style-type: none"> <li>• GT capsule 1 od with 100ml warm milk</li> <li>• Nirgundi taila – local application</li> </ul> Static knee exercises 30 min walking										
29 <sup>th</sup> November 2023	Patient was discharged from hospital  Pain in knee joint reduced, no pain in knee	Same shamana medications were advised for 1 month along with 30 min walking										

	while walking  VAS- 2, bulge test- negative, ROM – flexion 110° possible without pain	
16 <sup>th</sup> February 2024	Pain in b/l knee joint present  VAS-2, bulge test-negative, ROM-110° flexion possible without pain  Advised treatment on OPD basis for 7 days	Panchakarma: • Janu basti with mahanarayana taila for 7 days • Matra basti with Guggulu tiktaka ghrita 50ml for days Shamana Aushadis: • Guggulu Tiktaka capsule 1 bd with 100ml warm milk
23 <sup>rd</sup> April 2024	Patient came for follow up No fresh complaints , pain in knee joint reduced 60%, no pain in knee present while walking  VAS- 2, bulge test -negative, ROM- flexion 110° without pain	Guggulu tiktaka capsule 1 mg bd with 100 ml warm water was advised for 1 month

### TREATMENT ASSESSMENT PARAMETERS

The assessment parameters used for treatment include the Visual Analog Scale (VAS) for *Shula*, the bulge test for *Shotha*, Range of Motion (ROM) measurements like flexion for *Prasarana Akunchanayoho Pravritti Savedana*, and the WHOQOL-BREF scale <sup>[9]</sup> for evaluating overall health. [ Table no 2 and Table no 3]

**Table no 3: WHOQOL-BREF scale assessment**

BASELINE ASSESSMENT	29 <sup>th</sup> November 2023	LAST DAY OF FOLLOWUP
Physical health: 19 / 100	Physical health: 65 / 100	Physical health: 78 / 100
Psychological: 44 / 100	Psychological: 63 / 100	Psychological: 85 / 100
Social relationships: 75 / 100	Social relationships: 75 / 100	Social relationships: 75 / 100
Environment: 63 / 100	Environment: 69 / 100:	Environment: 75 / 100

### FOLLOW-UP AND OUTCOME

Patient was admitted in KLE Ayurveda hospital on 14<sup>th</sup> April 2023 and was discharged on 24<sup>th</sup> April 2023. Satisfactory results were observed in assessment parameters on the time of discharge. The patient was advised for follow-up within 90 days. The patient was advised to practice static knee exercises and 30 minutes of walking daily. Improvement in functional capacity and assessment parameters is main outcome in this case. After a year of follow-up in April 2024, the X-ray was repeated and there was an improvement in joint space, and assessment parameters also showed significant improvement. [Figure 1 and Figure 2] [Table no. 3]



**Figure no 1: Xray of right and left knee joint before treatment**



**Figure no 2: Xray of right and left knee joint after treatment**

## DISCUSSION

The patient was diagnosed as *janusandhigata vata* (~knee osteoarthritis) after assessing the signs and symptoms, VAS scale, BREF scale and X ray findings. There is no direct reference for *janusandhigata vata* but it may be treated as *vata vyadhi chikitsa* as the dosha predominantly affected is *vata*. The management of *Janusandhigata Vata* includes treatments such as *Basti*, *Abhyanga*, *Swedana*, *Lepa*, and *Shamana* medications. These therapies effectively counteract the vitiated *Dosha-Dushya* and aid in stopping the disease's progression, thereby achieving *Samprapti Vighatana*.

### **Probable mode of action of *Snehana* and *swedana* in *janusandhigata vata*:**

Ayurveda states, *Snehana* and *swedana* are the first line of care in management of any *vata vyadhi*. *Sarvaga abhyanga* was selected for patient as it helps in reducing tissue adhesion, increases range of knee joint motion, decreases muscle tension as well as muscle spasm.<sup>[10]</sup> The oil used for *abhyanga* was mahanarayana taila based on its *rasa panchaka* which may aid in managing the symptoms seen in OA.

*Swedana* modalities like *patra pinda sweda*, *kinwa lepa*, and *janu basti* were adopted for the patient. *Swedana* overall helps in enhancing blood circulation, reducing stiffness and also helps in alleviating pain. The medicinal properties of *patras* used in *patra pinda sweda* as well as *kinwa of amrutarishtha* was used for *kinwa lepa* help to reduce the *shotha* and hereby promote improved joint motility. Probable mode of action *Panchatikta niruha basti* and *Guggulu tiktaka matra basti* in *Janusandhigata vata* :

*Basti* is considered best *upakarma* for treating any *vata vyadhi*. As mentioned by Acharya Charaka, *Basti* retains in *Pakwashaya stana* and helps to remove *Doshas* from all over the body like the sun which stands millions kilometers away from the earth can evaporate the water by its rays <sup>[11]</sup>. *Tikta Rasa Yukta Basti* is indicated in *Asthigatavikaras*.

In this case, during first IPD course, *Panchatikta Basti* was administered. The formulation includes ingredients such as *Nimba*, which is rich in calcium and phosphorus and also has analgesic action. *Patola* provides anti-inflammatory action, while *Guduchi*, known for its *Kashaya rasa* helps in improving digestion, reduces *Vata*, and enhances absorption. *Vasa* and *Kantakari* also offer anti-arthritis and anti-inflammatory action, making them beneficial in the treatment.

*Tikta Rasa* is *Vayu* and *Akasha Mahabhuta* predominant. As a result of which it shows affinity towards the elements of the body like *Asthi dhatu* made of *Vayu* and *Akasha Mahabhuta* dominance. As *Tikta Rasa* increases *Vayu* which may increase the pathogenic process of *Sandhigata Vata* but, the principal line of *Ayurvedic* treatment lies in “*Sthanam Jayate Purvam*”. The site of *Sandhigata Vata* is *Sandhi* sthana. So, by reducing the *Vayu Dosha* *Tikta Rasa* helps in treating the *samprapti*.<sup>[12]</sup> It also exhibits actions such as *Deepana*, *Pachana*, and *Rochana*, which contribute to enhance the strength of body and joints. Additionally, its *Lekhana* action aids in weight reduction, making it beneficial in managing OA. Furthermore, *Tikta Rasa* has properties like *Jwaraghna* and *Daha Prashamana*, acting as an anti-inflammatory agent that helps in reducing pain and swelling.

In second IPD course, *basti* was changed to *Panchatikta ksheera basti*. *Ksheera* plays a crucial role. The properties of *ksheera* such as *Madhura rasa*, *Snigdha guna* helps in balancing the *vata dosha*. It also has *brihmana* action on the *dhatu*.

The *ghrita* selected for *anuvasana basti* was *guggulu tiktaka ghrita*. *Guggulu*, to its *Ushna* property, is highly *Vatashamaka Dravya*. Its *Ruksha* and *Vishada* properties make it highly effective in *Medohara*, aiding in fat reduction. Acharya Sushruta also highlights the *lekhana* property of *Guggulu*, which helps in weight reduction. The *Katu Rasa* of *Guggulu* acts as a *Deepana*, which helps in improving the patient's overall health. Pharmacologically, *Guggulu* shows anti-inflammatory, immunomodulatory, and anti-lipidaemic properties. The overall effect of *Guggulu tiktak ghrita* is by its *Ushna Virya* which effectively reduces aggravated *Vata* and alleviates the pain.<sup>[12]</sup>

Probable mode of action of Static Exercises in Knee OA:

Static exercises help in improvements of the Range of movements of the joints. It is suggested that prolonged exposure to consistent stretching at a specific degree of tension may increase the number of sarcomeres in muscle, enhancing flexibility and joint movement.<sup>[13]</sup>

## CONCLUSION

*Janusandhigata Vata* is a prevalent degenerative condition primarily affecting the elderly. In this case, the *Ayurvedic* treatment approach incorporated both *Shodhana* (cleansing) and *Shamana* (pacifying) therapies, which resulted in significant improvements in the overall health of the knee joint.

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