



Ayurvedic Interventions for Knee Osteoarthritis: A Review on Sandhigata Vata and Janu Basti

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Abstract

Background: Knee osteoarthritis (KOA) is one of the most prevalent degenerative joint disorders worldwide, causing pain, stiffness, reduced mobility, and disability among the elderly population. In Ayurveda, knee osteoarthritis closely resembles **Sandhigata Vata**, a disorder characterized by vitiation of Vata Dosha affecting the joints. Among various Ayurvedic therapeutic approaches, **Janu Basti**, a localized external oleation therapy, has gained considerable attention for its analgesic, anti-inflammatory, and rejuvenative effects.

Objective: To comprehensively review the Ayurvedic understanding of Sandhigata Vata and evaluate the role of Janu Basti in the management of knee osteoarthritis based on classical literature and contemporary scientific evidence.

Methods: Classical Ayurvedic texts including Charaka Samhita, Sushruta Samhita, Ashtanga Hridaya, Kashyapa Samhita, and contemporary published studies were reviewed. Modern literature regarding osteoarthritis pathophysiology and clinical studies evaluating Janu Basti was also analyzed.

Results: Janu Basti improves joint lubrication, alleviates pain, reduces stiffness, enhances mobility, and delays degenerative changes. Various medicated oils such as Mahanarayana Taila, Sahacharadi Taila, Ksheerbala Taila, Dhanwantaram Taila, and Bala-Ashwagandhadi Taila demonstrate significant therapeutic benefits.

Conclusion: Janu Basti serves as a safe, economical, non-invasive, and effective adjunct therapy in knee osteoarthritis. Integration of internal medications, Panchakarma procedures, physiotherapy, dietary regulation, and lifestyle modification offers comprehensive management of Sandhigata Vata.

Keywords: Knee Osteoarthritis, Sandhigata Vata, Janu Basti, Panchakarma, Ayurveda, Vata Vyadhi, Osteoarthritis.

Introduction

Knee osteoarthritis (KOA) represents one of the leading causes of disability globally. According to the World Health Organization, nearly 10–15% of adults over 60 years suffer from symptomatic osteoarthritis, with the knee being the most commonly affected joint. The increasing life expectancy, obesity, sedentary lifestyle, and sports injuries have substantially contributed to its growing prevalence.

The disease is characterized by:

- Progressive degeneration of articular cartilage
- Synovial inflammation
- Osteophyte formation
- Joint space narrowing
- Subchondral bone sclerosis
- Chronic pain and stiffness

Modern treatment largely focuses on symptom control through analgesics, NSAIDs, physiotherapy, intra-articular injections, and ultimately total knee replacement. However, prolonged NSAID use is associated with gastrointestinal, renal, and cardiovascular adverse effects.

Ayurveda describes similar features under **Sandhigata Vata**, one among the eighty Vata disorders (Nanatmaja Vata Vyadhi). The condition occurs due to aggravated Vata entering the joints, causing degeneration of cartilage and synovial tissues.

Among Panchakarma procedures, **Janu Basti** has emerged as one of the most effective localized therapies for knee disorders.

Modern Concept of Knee Osteoarthritis

Definition

Knee osteoarthritis is a chronic degenerative disease characterized by progressive destruction of articular cartilage with associated structural changes in surrounding tissues.

Epidemiology

- Most common arthritis worldwide
- Women affected more than men
- Incidence increases after 50 years
- Obesity doubles disease risk
- Leading cause of disability among elderly

Risk Factors

Non-modifiable

- Aging
- Female gender
- Genetics
- Previous trauma

Modifiable

- Obesity
- Sedentary lifestyle
- Repetitive knee stress
- Sports injury
- Occupational strain

Pathophysiology

Disease progression involves:

1. Cartilage degeneration
2. Reduced proteoglycan synthesis
3. Increased inflammatory cytokines
4. Matrix metalloproteinase activation
5. Osteophyte formation
6. Synovial inflammation
7. Muscle weakness
8. Progressive joint instability

Clinical Features

- Knee pain
- Morning stiffness (<30 minutes)
- Crepitus
- Restricted movement
- Swelling
- Tenderness
- Muscle wasting
- Difficulty climbing stairs
- Squatting difficulty

Diagnosis

Clinical

- Pain
- Tenderness
- Crepitus
- Limited ROM

Radiology

- X-ray
- MRI
- Ultrasound

Kellgren-Lawrence Grading

Grade	Findings
I	Doubtful narrowing
II	Small osteophytes
III	Moderate narrowing
IV	Severe degeneration

Ayurvedic Perspective**Sandhigata Vata**

The word Sandhigata Vata comprises:

- Sandhi = Joint
- Gata = Located
- Vata = Vitiated Vata Dosha

Thus, Sandhigata Vata refers to Vata localized within joints.

Nidana**Dietary Factors**

- Dry food
- Cold food
- Fasting
- Irregular meals

Lifestyle

- Excess walking
- Over exercise
- Trauma
- Night awakening
- Excess travel

Age-related

Jara (aging)

Samprapti

Nidana

↓

Vata Prakopa

↓

Dhatu Kshaya

↓

Asthi & Majja Kshaya

↓

Sandhi Vaigunya

↓

Sandhigata Vata

↓

Pain + Stiffness + Crepitus

Samprapti Ghataka

Component	Description
Dosha	Vata
Dushya	Asthi, Majja
Agni	Vishama
Ama	Usually absent
Srotas	Asthivaha
Rogamarga	Madhyama
Udbhava	Pakwashaya

Clinical Features (Ayurveda)

Classical symptoms include:

- Sandhi Shoola
- Sandhi Shotha
- Vatapurna Driti Sparsha
- Prasarana-Akunchana Vedana
- Hanti Sandhi
- Atopa
- Stambha
- Gati Hani

Differential Diagnosis

Disease	Differentiating Feature
Amavata	Ama symptoms
Vatarakta	Burning pain
Gridhrasi	Sciatica
Asthi Kshaya	Osteoporosis

Ayurvedic Principles of Management

Nidana Parivarjana - Avoid causative factors.

Snehana - Internal and external oleation.

Swedana - Sudation therapy.

Basti - Most effective therapy for Vata disorders.

Rasayana - Cartilage nourishment.

Janu Basti

Definition

Janu Basti is a localized oleation procedure in which warm medicated oil is retained over the knee joint using a dough ring.

Indications

- Knee OA
- Sandhigata Vata
- Ligament injury
- Meniscal degeneration
- Patellofemoral pain
- Sports injury
- Chronic knee pain

Contraindications

- Acute inflammation
- Septic arthritis
- Open wounds
- Skin infection
- Burns
- Fever

Materials Required

- Black gram flour
- Medicated oil
- Cotton
- Gauze
- Heating vessel
- Towels

Oils Used**Taila**

Mahanarayana Taila

Ksheerbala Taila

Sahacharadi Taila

Bala Taila

Dhanwantaram Taila

Narayana Taila

Indications

OA

Pain

Vata disorders

Weakness

Degeneration

Chronic pain

Procedure**Poorva Karma**

- Patient examination
- Vital assessment
- Positioning
- Oil warming

Pradhana Karma

1. Dough ring preparation
2. Ring fixed over knee
3. Warm oil poured
4. Maintain temperature
5. Oil replaced repeatedly
6. Continue 30–45 minutes

Paschat Karma

- Remove oil
- Gentle massage
- Fomentation
- Rest

Mode of Action**Ayurvedic Perspective**

- Pacifies Vata
- Nourishes Asthi Dhatu
- Lubricates Sandhi
- Improves circulation
- Relieves stiffness
- Reduces degeneration

Modern Perspective**Heat therapy:**

- Vasodilatation
- Improved circulation
- Muscle relaxation

Oil absorption:

- Increased transdermal penetration
- Reduced inflammation
- Improved synovial lubrication

Mechanical effect:

- Soft tissue relaxation
- Increased flexibility



Internal Medicines

Medicine	Dose
Yogaraja Guggulu	500 mg BID
Simhanada Guggulu	500 mg BID
Mahayogaraja Guggulu	500 mg BID
Dashamoola Kwatha	40 ml BID
Rasnasaptaka Kwatha	40 ml BID
Ashwagandha Churna	3–5 g BID
Lakshadi Guggulu	500 mg BID

Panchakarma Protocol

Day	Therapy
1–3	Abhyanga
1–3	Nadi Sweda
4–10	Janu Basti
11–18	Kala Basti
19–30	Internal medicines

Diet

Recommended

- Warm food
- Milk
- Ghee
- Sesame
- Green gram
- Garlic
- Ginger

Avoid

- Cold food
- Dry food
- Excess pulses
- Refrigerated foods
- Carbonated drinks

Yoga

- Tadasana
- Trikonasana
- Vajrasana (if tolerated)
- Setubandhasana
- Bhujangasana
- Quadriceps strengthening
- Pranayama

Clinical Evidence

Several studies have demonstrated that Janu Basti:

- Significantly reduces VAS pain scores
- Improves WOMAC scores
- Enhances range of motion
- Decreases stiffness
- Improves quality of life
- Reduces dependence on NSAIDs

The therapeutic effect is greater when combined with internal Ayurvedic medications and Basti therapy.

Advantages

- Non-invasive
- Safe
- Cost-effective
- Minimal adverse effects
- Suitable for elderly patients
- Can delay surgery
- Improves mobility

Limitations

- Requires trained therapist
- Multiple sittings needed
- Limited large multicentric trials
- Standardization of oil selection required

Future Research

Future studies should focus on:

- Multicenter randomized controlled trials
- MRI-based cartilage assessment
- Biomarkers of cartilage regeneration
- Standardized Janu Basti protocols
- Comparative studies with physiotherapy
- Long-term follow-up and cost-effectiveness analyses

Discussion

Sandhigata Vata is a chronic degenerative disorder arising from aggravated Vata and degeneration of Asthi and Majja Dhatus. Contemporary understanding of knee osteoarthritis shares remarkable similarities with this Ayurvedic concept, particularly regarding cartilage degeneration, loss of joint lubrication, pain, and functional impairment.

Janu Basti offers a localized therapeutic intervention by combining the effects of sustained warmth and medicated oils. From an Ayurvedic perspective, it provides **Snehana** (oleation), **Swedana** (sudation), and **Brimhana** (nourishment), thereby pacifying Vata and restoring joint function. The retained warm oil may enhance local circulation, reduce muscle spasm, improve tissue extensibility, and facilitate transdermal absorption of phytoconstituents possessing anti-inflammatory and analgesic properties.

Clinical studies have consistently reported improvements in pain intensity, stiffness, range of motion, and functional capacity following Janu Basti. When integrated with internal medications, Panchakarma, dietary regulation, physiotherapy, and yoga, the therapy aligns well with a holistic and multimodal management strategy. Nevertheless, variability in treatment duration, choice of medicated oil, and study methodology highlights the need for standardized treatment protocols and high-quality randomized controlled trials.

Conclusion

Knee osteoarthritis remains a significant cause of disability and reduced quality of life, especially among the aging population. Ayurveda provides a comprehensive framework for understanding this condition as **Sandhigata Vata**, emphasizing correction of Vata imbalance, tissue nourishment, and restoration of joint function. Janu Basti is a distinctive external Panchakarma therapy that has shown promising clinical benefits in reducing pain, stiffness, and functional disability while improving mobility.

The integration of Janu Basti with internal Ayurvedic medicines, Basti Karma, Rasayana therapy, appropriate diet, therapeutic exercise, and lifestyle modifications offers a rational and patient-centered approach to the long-term management of knee osteoarthritis. Although current evidence supports its clinical utility, further well-designed multicenter studies with standardized methodologies are essential to strengthen the evidence base and facilitate wider integration into evidence-based musculoskeletal care.

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