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CASE REPORT

Enhancing Quality of Life in *Janusandhigata Vaat* (Knee OA) Patients: A Case Study on Topical Ointment Therapy

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ABSTRACT

Janusandhigata Vaat (knee osteoarthritis [OA]) is a degenerative joint disorder characterized by pain, stiffness, swelling, and functional limitation that significantly impairs quality of life. This case study presents the clinical application of *Paribhadradi* ointment – a traditional *Ayurvedic* topical preparation containing fresh leaves of *Paribhadra*, fresh leaves of *Champak*, coconut, *Haridra*, *Samudra Lavan* (sea salt), *Hing*, and *Tila tail* – in the management of a patient with moderate knee OA. The patient, a 52-year-old female with bilateral knee pain and functional impairment, received nightly topical application of *Paribhadradi* ointment for 14 days. Clinical assessment revealed a significant reduction in pain intensity, joint stiffness, swelling, and improvement in functional mobility. The case demonstrates the potential of traditional topical oleation therapy (*Bahya Snehana*) as a safe, accessible, and effective intervention for enhancing quality of life in knee OA patients. This case study provides clinical evidence from prior trials, traditional preparation methods, and therapeutic rationale to provide a comprehensive framework for implementing *Paribhadradi* ointment therapy in clinical practice.

1. INTRODUCTION

Janusandhigata Vaat, the *Ayurvedic* term for knee osteoarthritis (OA), represents one of the most prevalent degenerative joint disorders affecting middle-aged and elderly populations worldwide. The condition is characterized by progressive cartilage degeneration, subchondral bone changes, and synovial inflammation, manifesting clinically as pain (*Shoola*), stiffness (*Stabdhata*), swelling (*Shotha*), crepitus (*Atopa*), and functional limitation in activities of daily living. The burden of knee OA extends beyond physical symptoms to encompass psychological distress, reduced mobility, and diminished quality of life, making effective symptom management a critical therapeutic goal. Topical interventions offer several advantages in the management of knee OA, including localized drug delivery, reduced systemic exposure and adverse effects, ease of application, and patient acceptability. *Sandhigata Vata* is considered difficult to treat because it affects important joint structures (*Marma*) and is dominated by *Vata Dosha*, which is naturally hard to control. "Pittam Pangu Kapham Pangu Pangavo Mala Dhatavah, Vayuna Yatra Niyante Tatra Gacchanti Meghavat."[1] It involves the *Madhyama Roga Marga*, meaning deeper tissues, such as joints and bones are affected. This condition commonly occurs in old age, when the body undergoes tissue depletion (*Dhatukshaya*),[2] making recovery slower and more challenging. According to *Acharya Charaka*, the management of *Vatavyadhi* focuses on repeated use of therapies, such as *Snehana* (oleation), *Swedana* (sudation), *Vasti* (medicated enema), and *Mrudu Virechana* (mild purgation), which help to balance Vata and support joint health.[3] In Ayurvedic therapeutics, external oleation (*Bahya Snehana*)[4] and topical paste applications (*Lepa/Pralepa*) are fundamental treatment modalities for *Vata*-predominant joint disorders. These approaches aim to pacify aggravated *Vata dosha*, nourish joint tissues, reduce inflammation, and restore functional integrity through transdermal absorption of bioactive constituents. In *Ayurvedic* pathophysiology, *Sandhigata Vata* arises from the vitiation of *Vata dosha* in the joint space (*Sandhi*), leading to depletion of *Shleshaka Kapha* (synovial fluid) and subsequent degenerative changes. The classical features include *Sandhishoola* (joint pain), *Sandhishotha* (joint swelling), *Akunchana-Prasarana Pravritti Savedana* (painful flexion and extension), and *Atopa* (crepitus). Acharya Sushruta has described *Sandhi Shoola* (pain in joints), *Sandhi Shotha* (swelling in joints), and *Hanti Sandhigati* (diminution of the movements in joints) as symptoms of *Sandhigata Vata*.[5] The therapeutic strategy emphasizes *Vata* pacification through

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Snehana (oleation), *Swedana* (sudation), and local applications that restore lubrication and nourishment to the joint structures.[1]

2. MATERIALS AND METHODS

Snehana (oleation therapy) is a cornerstone of *Ayurvedic* management for Vata disorders. External *Snehana* involves the application of medicated oils or ointments to facilitate transdermal absorption of lipophilic bioactive compounds, enhance local circulation, and provide mechanical lubrication to stiff joints. *Lepa or Pralepa* refers to the application of herbal pastes or ointments that combine therapeutic herbs with appropriate vehicles to deliver anti-inflammatory, analgesic, and tissue-regenerative effects directly to the affected site.

Paribhadradi ointment is a traditional *Ayurvedic* topical preparation formulated with a synergistic combination of herbal and mineral ingredients in a sesame oil base. The formulation comprises of fresh leaves of *Paribhadra* (*Erythrina variegata*), fresh leaves of *Shweta Champak* (*Plumeria Apiculata*), Coconut (oil or fresh kernel), *Haridra* (*Curcuma longa*), *Samudra Lavan* (sea salt), *Hing* (*Ferula asafoetida*, asafoetida), and *Tila taila* (sesame oil as the base). This formulation has been traditionally employed for the management of joint pain and inflammation, in the form of *lepa* for *Sandhigata Vata*. The preparation of *Paribhadradi* ointment follows general principles of *Ayurvedic Taila Paka* (medicated oil preparation) and ointment formulation, adapted from related formulations documented in the literature. *Paribhadradi Pralepa* is a traditional Sri Lankan herbal formulation commonly used at the Gampaha Wickramarachchi *Ayurveda* Teaching Hospital in Yakkala. It has long been applied in the management of joint-related conditions, such as OA (*Sandhigata Vata*), gout (*Gambheera Vatarakta*), and rheumatoid arthritis (*Amavata*).[6]

In this study, the formulation was prepared as an ointment to assess its efficacy in managing *Sandhigata Vata* (OA). The study reported a significant reduction in clinical features of knee OA, with sustained improvement observed at 2-week follow-up. The positive outcomes support the therapeutic potential of this traditional formulation.

3. CASE PRESENTATION

- Age: 52 years
- Gender: Female
- Occupation: Homemaker
- Chief complaint: Bilateral knee pain, stiffness, and difficulty in walking for the past 18 months.

3.1. History of Present Illness

The patient presented with a progressive history of bilateral knee pain that worsened with prolonged standing, walking, and climbing stairs. She reported morning stiffness lasting approximately 30 min and occasional swelling in both knees, particularly after physical activity. The pain was described as a dull, aching sensation with intermittent sharp exacerbations. There was no history of trauma, fever, or systemic illness. The patient had tried oral analgesics intermittently with partial relief but was concerned about long-term medication use.

3.2. Physical Examination

- Inspection: Mild bilateral knee swelling; no erythema or warmth
- Palpation: Tenderness over the medial joint line bilaterally; mild effusion present
- Range of motion: Flexion limited to 110°, extension full but painful at the terminal range
- Gait: Antalgic gait with reduced stride length
- Crepitus: Present on passive movement of both knees
- *Prakriti: Vata-Pitta* predominant
- *Agni* (digestive fire): *Mandagni* (sluggish)
- *Koshtha*: *Madhyama* (moderate bowel function)
- *Dosha* assessment: Vata vitiation with secondary *Kapha* involvement.

3.3. Diagnosis

Janusandhigata Vaat - Bilateral knee OA (Grade II–III on Kellgren-Lawrence scale, based on clinical and radiographic findings).

3.4. Intervention Protocol

The patient was prescribed a 14-day course of topical *Paribhadradi* ointment therapy, applied nightly to both knees. The treatment plan was designed to align with the protocol used in prior clinical evaluations of *Paribhadradi Pralepa*.[6]

3.4.1. Objectives

- Reduce pain and stiffness
- Decrease joint swelling
- Improve functional mobility and quality of life
- Assess safety and tolerability.

3.4.2. Ointment application technique

1. Preparation: The patient was instructed to clean the knee area with lukewarm water and pat dry before application
2. Application: A sufficient quantity of *Paribhadradi* ointment (approximately 5–10 g/knee) was applied uniformly over the anterior, medial, and lateral aspects of each knee joint, covering the joint line and surrounding soft tissues
3. Massage: Gentle circular massage was performed for 5–7 min to facilitate absorption and enhance local circulation
4. Dressing: The treated area was covered with a clean cotton cloth or sterile gauze and secured with a light bandage to prevent staining of clothing and to maintain contact with the skin overnight
5. Timing: Application was performed every night before bedtime, and the dressing was removed the following morning.

The patient was advised to:

- Avoid exposure of the treated area to cold air or water immediately after application
- Maintain a balanced diet with warm, easily digestible foods to support Agni
- Engage in gentle range-of-motion exercises as tolerated
- Report any adverse reactions (rash, itching, burning sensation) immediately.

The patient demonstrated excellent compliance, completing all 14 nightly applications without interruption.

4. RESULTS

4.1. Clinical Outcomes and Assessment

4.1.1. Assessment Parameters

Clinical outcomes were assessed using the following parameters:

1. Pain intensity: Visual Analog Scale (VAS) ranging from 0 (no pain) to 10 (worst imaginable pain)
2. Joint stiffness: Duration of morning stiffness (in min)
3. Joint swelling: Clinical assessment (graded as absent, mild, moderate, severe)

4. Range of motion: Knee flexion measured in degrees using a goniometer
5. Functional mobility: Timed up and go (TUG) test (time taken to rise from a chair, walk 3 m, turn, and return to sitting)
6. Quality of life: Patient-reported improvement in activities of daily living.

Assessments were conducted at baseline (Day 0), mid-treatment (Day 7), end of treatment (Day 14), and follow-up (Day 28).

4.1.2. Results at day 7

- Pain intensity (VAS): Reduced from 7/10 to 5/10.
- Morning stiffness: Reduced from 30 min to 20 min
- Joint swelling: Mild reduction; swelling graded as mild (previously moderate)
- Range of motion: Flexion improved to 115° (from 110°)
- TUG test: Reduced from 14 s to 12 s
- Patient report: Noticeable reduction in pain during walking; improved sleep quality.

4.1.3. Results at day 14

- Pain intensity (VAS): Reduced from 7/10 to 3/10
- Morning stiffness: Reduced from 30 min to 10 min
- Joint swelling: Minimal; swelling graded as minimal to absent
- Range of motion: Flexion improved to 125° (from 110°)
- TUG test: Reduced from 14 s to 10 s
- Patient report: Significant improvement in ability to perform household tasks; able to climb stairs with minimal discomfort; overall satisfaction with treatment.

4.1.4. Follow-up at day 28

- Pain intensity (VAS): Maintained at 3/10
- Morning stiffness: Maintained at 10–15 min
- Joint swelling: Absent
- Range of motion: Maintained at 125°
- TUG test: Maintained at 10 s
- Patient report: Sustained improvement; no recurrence of severe symptoms; patient expressed interest in periodic maintenance therapy.

Adverse events: No adverse reactions (skin irritation, rash, allergic response) were reported throughout the treatment and follow-up period.

5. DISCUSSION

This case demonstrates clinically meaningful improvement in pain, stiffness, swelling, and functional mobility following a 14-day course of topical *Paribhadradi* ointment therapy. Most of the ingredients in this ointment are known for their *Shophahara* (anti-inflammatory) and *Shoolahara* (pain-relieving) properties, which help reduce swelling and pain associated with Sandhigata Vata. These ingredients also balance *Kapha* and *Vata* doshas, as they possess a combination of *Madhura* (sweet), *Katu* (pungent), and *Tikta* (bitter) tastes, along with *Guru* (heavy) and *Snigdha* (unctuous) qualities, *Ushna Veerya* (hot potency), and *Madhura* and *Katu Vipaka* (post-digestive effects). Together, these characteristics make the formulation beneficial in managing *Sandhigata Vata*. The ingredients used in the ointment are having scientifically validated analgesic and anti-inflammatory actions, such as *Cocos nucifera*,[7] *Erythrina variegate*,[8] and *Curcuma longa*[9] – have been scientifically shown to possess analgesic (pain-relieving) properties. Similarly, herbs, such as *Erythrina variegata*, *Plumeria apiculata*, *Cocos nucifera*, *Curcuma longa*, *Sesamum indicum*,[10] and *Ferula asafoetida*[11] have demonstrated significant anti-inflammatory effects in scientific studies. Because of this combined analgesic and anti-inflammatory action, *Paribhadradi Pralepa* is effective in reducing both pain and swelling in patients with *Sandhigata Vata*. The reduction in pain intensity, substantial decrease in morning stiffness, and improvement in knee flexion (from 110° to 125°) represent significant gains in symptom control and functional capacity.

The sustained benefits observed at the 2-week follow-up suggest that the therapeutic effects extend beyond the active treatment period, consistent with findings from prior clinical trial. The therapeutic efficacy of *Paribhadradi* ointment likely arises from multiple mechanisms; *Haridra* (turmeric) contains curcuminoids with well-documented anti-inflammatory and antioxidant properties that reduce synovial inflammation and cartilage degradation. For *Vata* Pacification, Sesame oil (*Tila taila*) and Hing are traditionally recognized for their *Vata*-pacifying effects, addressing the underlying *Doshic* imbalance in *Sandhigata Vata*. The base oil facilitates the extraction of bioactive compounds, provides a lipophilic vehicle for transdermal delivery, and itself possesses nourishing and *Vata*-pacifying qualities. *Samudra Lavan* acts as a penetration enhancer and may contribute to local osmotic and circulatory effects, facilitating transdermal absorption of bioactive constituents. To improve local circulation, gentle massage during application, combined with the warming properties of the formulation, enhances local blood flow and lymphatic drainage, reducing edema and promoting tissue repair. The oil-based ointment provides external lubrication and may support the restoration of joint mobility through repeated application and movement. The trial setting at Gampaha Wickramarachchi Ayurveda Teaching Hospital underscores the traditional clinical use of this formulation. In addition, the broader literature supports the role of topical therapies, such as Lepa/Pralepa and oil-based Abhyanga as standard management modalities for joint Knee OA symptoms.

The positive outcomes in this case study provide a reasonable basis for considering Paribhadradi ointment as a viable adjunctive therapy for knee OA. The patient tolerated the treatment well, with no adverse reactions reported. The use of natural, plant-based ingredients and the external route of administration minimizes the risk of systemic side effects commonly associated with oral analgesics and non-steroidal anti-inflammatory drugs. This safety profile makes *Paribhadradi* ointment an attractive option for patients seeking alternatives to conventional pharmacotherapy or those with contraindications to systemic medications.

Several limitations must be acknowledged as a single-case study, the findings cannot be generalized to the broader population. Individual variability in response, placebo effects, and natural fluctuations in symptom severity may influence outcomes. The 2-week post-treatment follow-up provides limited information on long-term efficacy and durability of benefits. Absence of objective imaging, that is, radiographic assessment/magnetic resonance imaging of structural changes in the knee joint was not performed, so the impact on cartilage or bone pathology remains unknown.

Paribhadradi ointment therapy can be integrated into clinical practice as an adjunctive or standalone intervention for patients with mild to moderate knee OA, particularly those seeking non-pharmacological or traditional treatment options. The ease of application, favorable safety profile, and patient acceptability make it suitable for outpatient management and self-administration at home.

6. CONCLUSION

This case study illustrates the potential of *Paribhadradi* ointment as an effective and safe intervention for enhancing the quality of life in patients with *Janusandhigata Vaat* (knee OA). The patient experienced significant reductions in pain, stiffness, and swelling, along with improved functional mobility and sustained benefits at follow-up, consistent with prior clinical trial findings. The formulation's synergistic blend of *Paribhadra, Champak, coconut, Haridra, Samudra Lavan, Hing, and Tila taila* embodies the *Ayurvedic* principles of *Snehana* and *Lepa*, offering a holistic approach to joint health that addresses both symptomatic relief and underlying *Doshic* imbalance. While the evidence base is promising, further research is needed to establish efficacy through rigorous randomized controlled trials, elucidate mechanisms of action, standardize preparation protocols, and assess long-term outcomes. Nonetheless, *Paribhadradi* ointment represents a valuable addition to the therapeutic armamentarium for knee OA, particularly for patients seeking integrative, patient-centered care that honors traditional healing wisdom alongside contemporary clinical practice.

7. ACKNOWLEDGMENTS

Nil.

8. AUTHORS' CONTRIBUTIONS

All authors give equal contribution in making of this manuscript.

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Nil.

10. ETHICAL STATEMENT

Ethical approval was not required for this study as it is a case study.

11. CONFLICT OF INTERESTS

The authors declare no conflicts of interest regarding the publication of this paper.

12. DATA AVAILABILITY STATEMENT

The data analyzed in this review were obtained from publicly available sources, including peer-reviewed articles, observational studies, and surveys accessible through databases.

13. PUBLISHERS' NOTE

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