

Integrating Acupuncture and Yoga for Pain Management in Knee Osteoarthritis

Integración de la acupuntura y el yoga para el tratamiento del dolor en la artrosis de rodilla

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Resumen

Antecedentes: La osteoartritis de rodilla (OA) es una enfermedad prevalente y debilitante. Se explora el potencial de una intervención multimodal para el tratamiento de la OA, combinando terapias naturopáticas, acupuntura, yoga y ejercicio de resistencia.

Descripción del caso: Varón de 68 años, con un historial de un año de OA grado II de rodilla. Refería dolor moderado y movilidad articular reducida, que afectaban las actividades diarias.

Hallazgos clínicos: La evaluación inicial reveló una puntuación de 31 en el Índice de Osteoartritis de la Western Ontario and McMaster University (WOMAC) y de 5 en la Escala Visual Analógica (EVA) del dolor.

Intervención: El protocolo combinó tratamientos naturistas tradicionales, compresas de barro y mostaza, con terapias basadas en la evidencia, acupuntura y ejercicio de resistencia. Estas modalidades se eligieron para abordar los síntomas multifacéticos de la OA de rodilla, centrándose en el alivio sintomático y la mejora funcional.

Resultados: El paciente mejoró la capacidad funcional y la percepción del dolor disminuyó tras la intervención. Las puntuaciones WOMAC disminuyeron 26 y las puntuaciones de dolor de la EVA disminuyeron un 40%, lo que indica una marcada reducción de la gravedad de la OA.

Conclusiones: Los beneficios potenciales de un enfoque multifacético para el tratamiento de la OA de rodilla fueron efectivos. Disminuyó la percepción del dolor, mejoró la capacidad funcional, el impacto en los resultados como pérdida de peso y presión arterial sugieren el valor potencial de este tipo de estrategias integradoras para mejorar los resultados y mejorar el bienestar del paciente.

Abstract

Background: Knee osteoarthritis (OA) is a prevalent and debilitating condition. We explore the potential of a multimodal intervention for managing knee OA, combining naturopathic therapies, acupuncture, yoga, and resistance exercise.

Case description: A 68-year-old male presented with a one-year Grade II knee OA history. The patient reported moderate pain and reduced joint mobility, impacting daily activities. Clinical Findings: Initial assessment revealed a Western Ontario and McMaster University Osteoarthritis Index (WOMAC) score of 31 and a Visual Analog Scale (VAS) pain score of 5.

Intervention: We provided a protocol to the patient that combined traditional naturopathic treatments, mud and mustard compresses, with evidence-based therapies, acupuncture, and resistance exercise. These modalities were chosen to address the multifaceted symptoms of knee OA, focusing on symptomatic relief and functional improvement.

Results: The patient improved functional ability and decreased pain perception. WOMAC scores decreased by 26%, reflecting a notable reduction in OA severity. VAS pain scores decreased by 40%, indicating a substantial reduction in perceived pain intensity. The patient reported improved performance in daily activities, suggesting enhanced functional capacity. They also experienced weight loss and lower blood pressure, potentially contributing to overall well-being and influencing pain management and functional capabilities.

Conclusions: The potential benefits of a multifaceted approach to managing knee OA were effective. The decrease in pain perception, improvements in functional ability, and even secondary outcomes like weight loss and blood pressure suggest the potential value of exploring such integrative strategies for improved patient outcomes and enhanced well-being in individuals with knee OA.



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Introduction

Osteoarthritis (OA) of the knee, a prevalent musculoskeletal disorder, imposes significant pain and functional limitations, affecting millions of individuals worldwide. In India, the burden of OA is substantial and rising, with age-standardized prevalence increasing by 8.4% and disability-adjusted life years (DALYs) by 9.8% between 1990 and 2019 (1). The condition disproportionately affects older adults, with estimates suggesting a prevalence of 3.9% among those aged 40 and above and a higher prevalence among women (2). While socioeconomic disparities in OA prevalence require further investigation, existing data suggests similar risk factors across different socioeconomic groups (1,2).

Traditionally, OA management focused on symptom alleviation with pharmacotherapy and physical therapy. However, contemporary understanding highlights the importance of core strengthening exercises and maintaining joint flexibility for long-term recovery and preventing recurrences (3,4). Recognizing the limitations of conventional approaches, researchers are increasingly exploring the potential of complementary and alternative medicine (CAM) in OA management (3). CAM modalities such as naturopathy, acupuncture, and yoga have garnered attention for their potential to effectively manage pain and improve the quality of life in OA patients. These interventions offer a multifaceted approach targeting various aspects of the condition, including pain reduction, functional improvement, and overall health enhancement. While pharmacotherapy and physical therapy remain foundational, integrating CAM offers a synergistic approach to addressing the complex needs of OA patients (5,6).

Naturopathy, grounded in natural healing principles, emphasizes the body's inherent ability to heal. Naturopathic interventions like hydrotherapy (baths and packs) show promise in OA, potentially impacting pain, joint mobility, and function (5,6). Acupuncture, a traditional Chinese medicine practice involving fine needle insertion, demonstrates potential in OA by influencing pain perception and improving joint mobility. Yoga, originating from India, combines physical postures with breathing exercises and meditation, demonstrating effectiveness in OA management by impacting pain, joint mobility, muscle strength, and overall function (7,8,9,10).

This case report aims to elucidate the practical application and outcomes of integrating naturopathy, acupuncture, and yoga in managing knee OA. Through meticulous examination of a single case in real-world clinical settings, we seek to contribute valuable evidence supporting the integration of these modalities in comprehensive OA management. By showcasing the potential benefits of this multimodal approach, we hope to offer valuable insights for clinicians and researchers who are advancing holistic musculoskeletal health approaches.

Case

A 68-year-old male presented to the Naturopathy and Yoga Hospital with Grade II Osteoarthritis primarily affecting his right knee, accompanied by a persistent burning sensation in his

foot. The patient, standing 171 cm tall and weighing 81 kg with a BMI of 27.7, reported knee pain exacerbated by climbing stairs and prolonged walking, alleviated by rest. Physical examination revealed tenderness and crepitus in the right knee joint with a limited range of motion. No morning stiffness was noted. Previous interventions included topical analgesics and a recommended kneecap for support. The patient's medical, family and psychosocial history were unremarkable. The primary concerns were knee pain and foot discomfort, both persisting for one year.

Physical examination revealed swelling and tenderness in the affected joints, confirming the musculoskeletal impact of osteoarthritis. The patient's pain and functional status were objectively assessed using the Visual Analog Scale (VAS) and the Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC), with scores of 5 and 31, respectively, recorded at admission and discharge. Additionally, the patient disclosed a four-year history of benign prostatic hyperplasia and a 20-year history of seasonal rhinitis, emphasizing the need for a holistic approach to manage coexisting conditions and optimize overall health outcomes.

Therapeutic intervention

A comprehensive, 7-day intervention plan was designed to address Mr. X's knee OA pain and improve his overall function and well-being. Upon Obtaining the patient's consent, this multimodal approach integrated traditional and evidence-based modalities, targeting pain reduction, joint mobility, and muscle strengthening were provided. This holistic intervention plan aimed to synergistically manage Mr. X's OA symptoms through traditional practices and contemporary evidence-based approaches, promoting pain reduction, functional improvement, and overall well-being. The severity of the patient's osteoarthritis was assessed using the Western Ontario and McMaster Universities (WOMAC) Osteoarthritis Index (11). This validated patient-reported outcome measure WOMAC and patient-reported Visual Analog Scale (VAS) pain score evaluates pain, stiffness, and physical function, providing a comprehensive picture of the impact of osteoarthritis on the patient's daily activities.

Acupuncture sessions utilized precise needle insertion at specific acupoints, aiming to rebalance energy flow and stimulate the body's natural healing mechanisms for pain relief. These sessions were complemented by alternating applications of mud and mustard packs, promoting warmth, improved circulation, and additional pain relief. Warm knee packs were also incorporated to address stiffness and enhance joint mobility. Additionally, resisted exercise therapy was implemented to target muscle strength and joint stability, contributing to long-term functional improvement. The patient adhered well to the intervention, with no adverse or unanticipated events reported, and the treatment was well-tolerated throughout the course.

Results

Following the 7-day intervention of combined naturopathic, acupuncture, and yoga therapy, the patient exhibited significant improvements in both functional abilities and pain perception

Table 1. Intervention of combined naturopathic, acupuncture, and yoga therapy

S.no	Therapy administered		No. of sessions	Duration
1.	Mud therapy	Mud application to knees	Everyday for 7 days	20-30 min
2.	Hydrotherapy	Warm knee pack	Everyday for 7 days during Morning & Afternoon	20-30 min
		Mustard pack to knees		25-30 min
3.	Acupuncture	Acupuncture points. ST-36-Zusanli, SP-6 (B/L) - saninjiao, SP-10- Xuehai, SP-3- Tai bai, LI-11- Quichi	Every day for 7 days evening session	30 min
		Tadasana	Every day for 7 days both morning and evening sessions	TOTAL 50 min:
		Uttanpadasana		30 min
		Pada chakrasana		
4.	Yoga therapy	Pawana muktasana		5 min
		Setu bhandasana		
		Nadi Shuddhi pranayama		5 min
		Bhramari pranayama		
		Mindfulness relaxation technique		10 min
5.	Physiotherapy	Resisted exercise therapy	Everyday	10 min

(Table 1). Objective measures recorded in Table 2 demonstrated a notable decline in the Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) score from 31 (pre-intervention) to 23 (post-intervention), representing a 26% improvement in OA severity. Additionally, their Visual Analog Scale (VAS) pain score decreased from 5 to 3, indicating a 40% reduction in perceived pain intensity. These findings suggest a positive impact of the intervention on both functional limitations and pain associated with knee osteoarthritis.

Furthermore, the patient reported improved performance in daily activities such as climbing stairs and walking, highlighting enhanced functional capacity. They also experienced a 3 kg weight loss and decreased blood pressure, potentially contributing to their overall well-being and potentially influencing pain management and functional capabilities. While further investigation is warranted to establish causal relationships, these secondary outcomes suggest potential broader benefits of the intervention beyond immediate pain and function improvement.

Discussion

This single-case report explores the potential of a multifaceted approach, integrating diverse elements like naturopathic interventions (mud therapy, warm mustard packs, warm compresses), acupuncture, yoga therapy, and resistance exercise for managing knee osteoarthritis (OA). The primary aim was to assess the impact of this integrative strategy on pain, physical function, and overall well-being in a patient with diagnosed knee OA.

Naturopathy interventions such as Mud therapy, mustard seed paste pack application, and warm packs were employed based on research suggesting their potential to modulate inflammation through key marker changes (TNF- α , IL-1 β , PGE2, LTB4) and influence cartilage health (12). Mustard packs, with their counter-irritant and vasodilatory properties, likely mediated by Allyl Isothiocyanate, aimed to provide analgesia and enhance blood flow/nutrient delivery to the joint, reducing inflammation (13). Warm packs contributed to pain relief by improving

Table 2. Follow-up parameter analysis

S.no	Parameter	Pre-intervention	Post-intervention	Percentage
1.	VAS pain score	5	3	40.0
2.	WOMAC scale	31	23	25.8
3.	Swelling	7	4	42.9
	Range of motion - flexion			
4.	Right knee	45°	60°	33.3
	Left knee	60°	70°	16.6
5.	Weight	81.0	78.8	2.7
6.	BMI	27.7	26.9	2.8
7.	Systolic blood pressure	110	128	16.3
8.	Diastolic blood pressure	70	80	14.2
9.	Pulse rate	76 bpm	80 bpm	-5.3

Upon discharge, the patient ceased taking Tab. Paracetamol (SOS), suggests a decrease in pain and a sense of relief

circulation and stimulating pain-inhibiting receptors, additionally enhancing flexibility and reducing tension (12,13). Acupuncture targeted specific points (ST-36, SP-6, SP-10, SP-3, LI-11) based on established research suggesting their ability to modulate neurotransmitters like opioids and serotonin, impacting the hypothalamic-pituitary-adrenal axis and potentially lowering inflammatory markers (14,15,16). The intricate mechanisms involving adenosine triphosphate (ATP) and transient receptor potential vanilloid (TRPV) channels further highlight the potential of acupuncture as a complementary intervention for OA pain management (17,18).

Yoga practices incorporated gentle stretches to improve joint flexibility and muscle-strengthening exercises for enhanced joint stability and function, drawing upon established research (8,19). Mindfulness and relaxation techniques, consistent with previous studies, empowered the patient's pain coping mechanisms, leading to improvements in stiffness, discomfort, and muscle support (20). These combined benefits translated to a positive impact on daily activities and overall quality of life. Physical function demonstrably improved through enhanced muscle strength and mechanics, potentially optimizing joint biomechanics and mitigating cartilage degradation (8,19,20).

This case report highlights the potential of a multifaceted approach combining naturopathic interventions, acupuncture, yoga therapy, and resistance exercise in addressing pain, physical function, and overall well-being in individuals with knee OA. While further research is necessary to solidify its evidence base, this report offers valuable insights into the potential benefits of such integrative approaches for managing knee OA and encourages further exploration in this promising direction.

Conclusion

This single-case report investigated the efficacy of a multimodal intervention for knee osteoarthritis, integrating naturopathic therapies, acupuncture, yoga, and resistance exercise. The observed clinically significant improvements in both pain perception and functional ability in the patient suggest the potential value of this multifaceted approach in managing knee osteoarthritis. While further research is necessary to confirm these findings and elucidate underlying mechanisms, this case report underscores the promising avenue of exploring such integrative strategies for improved patient outcomes and enhanced well-being in individuals with knee osteoarthritis.

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