HSPI The Open Access Publisher

ACR ARCHIVES OF CASE REPORTS
ISSN 2637-3793

Case Report

Physiotherapy Management of Advanced Bilateral Knee Osteoarthritis with Associated Lumbar Pain: A Case Report

Rosy Krupa Sree Polasapalli*

Senior Physiotherapist, Aswini Hospitals, Nizampet, Hyderabad, Telangana – 500090, India

More Information

***Corresponding author:** Rosy Krupa Sree Polasapalli, Senior Physiotherapist, Aswini Hospitals, Nizampet, Hyderabad, Telangana – 500090, India, Email: rosyposupo@gmail.com

Submitted: April 21, 2026
Accepted: April 29, 2026
Published: April 30, 2026

Citation: Polasapalli RKS. Physiotherapy Management of Advanced Bilateral Knee Osteoarthritis with Associated Lumbar Pain: A Case Report. Arch Case Rep. 2026; 10(4): 39-42. Available from: https://dx.doi.org/10.29328/journal.acr.1001187

Keywords: Knee osteoarthritis, Physiotherapy, Rehabilitation, Low back pain, Quadriceps strengthening, Case report

Check for updates

OPEN ACCESS

Abstract

Background: Knee osteoarthritis (OA) is a chronic degenerative joint disorder characterized by cartilage degeneration, pain, stiffness, and reduced functional mobility. Advanced stages of OA often result in severe disability and may also contribute to secondary musculoskeletal problems such as low back pain due to altered biomechanics and gait abnormalities.

Case Presentation: A 56-year-old female presented with bilateral knee pain for 8 years associated with severe low back pain for 10 days. Clinical examination revealed pain severity of 8/10 on the Visual Analog Scale (VAS), reduced knee range of motion, quadriceps atrophy, hamstring tightness, crepitus, and positive patellofemoral grind test. Radiological investigations confirmed Grade IV bilateral knee osteoarthritis with osteophyte formation and lumbar involvement at L4–L5 and L5–S1 levels.

Intervention: A comprehensive physiotherapy rehabilitation program including pain management, quadriceps strengthening, stretching exercises, patellar mobilization, gait training, and lumbar stabilization exercises was implemented.

Conclusion: Physiotherapy rehabilitation plays a crucial role in reducing pain, improving mobility, enhancing muscle strength, and restoring functional independence in patients with advanced knee osteoarthritis.

Introduction

Osteoarthritis (OA) is one of the most common musculoskeletal disorders affecting the elderly population worldwide and is a major cause of disability and reduced quality of life [1]. Knee osteoarthritis is characterized by progressive degeneration of articular cartilage, osteophyte formation, synovial inflammation, and narrowing of joint space, leading to pain, stiffness, muscle weakness, and functional limitations [2].

The prevalence of knee OA increases with age and is more commonly observed in women. Chronic pain and reduced mobility significantly affect activities of daily living and overall physical independence [3]. In advanced stages, altered gait mechanics and compensatory postural changes may also contribute to secondary low back pain and lumbar dysfunction [4].

Current evidence-based guidelines recommend physiotherapy as a first-line conservative management strategy for knee OA. Therapeutic exercises, strengthening programs, manual therapy, electrotherapy modalities, and functional rehabilitation have shown beneficial effects in reducing pain and improving physical performance [5,6].

This case report presents the physiotherapy assessment and management of a patient diagnosed with advanced bilateral knee osteoarthritis associated with lumbar pain.

Case presentation

Patient information

Age/Gender: 56-year-old female

Chief complaints:

- Bilateral knee pain for 8 years
- Severe low back pain for 10 days

Medical history

The patient reported chronic bilateral knee pain that gradually progressed over several years. She also complained of acute low back pain involving the lumbar region. There was no significant past medical or surgical history. Previous physiotherapy treatment was irregular and incomplete.

Clinical findings

Observation

- Built: Lean
- Posture: Normal
- Gait: Mildly painful gait pattern
- Swelling: Mild swelling in both knees
- Deformity: Absent

Palpation

- Tenderness: Present around bilateral knee joints
- Edema: Mild edema present

Pain assessment

- Visual Analog Scale (VAS): 8/10

Physical examination

Special tests

- Patellofemoral Grind Test: Positive
- Crepitus Test: Positive

Neurological examination

- Knee jerk reflex: Normal
- Patellar reflex: Normal

Muscle assessment

- Quadriceps atrophy: Present
- Hamstring tightness: Present
- Manual Muscle Testing (MMT): Grade 3–4/5

Range of motion

Joint	Active ROM	Passive ROM
Left Knee	Flexion: 100 – 105°	105°
Right Knee	Flexion: 110 – 115°	110°

Additional findings

- Mild joint effusion present
- Capsular pattern present
- Resisted isometric contraction: Positive
- Limb length discrepancy: Absent

Investigations

- X-ray examination
- MRI findings
- Clinical orthopedic assessment

Radiological findings confirmed Grade IV bilateral knee osteoarthritis with osteophyte formation and degenerative lumbar involvement at L4–L5 and L5–S1 levels.

Diagnosis

- Bilateral Knee Osteoarthritis (Grade IV)
- Osteophyte formation
- Associated lumbar pain involving L4–L5 and L5–S1 segments

Physiotherapy intervention

Treatment goals

Short-term goals:

- Reduce pain and inflammation
- Improve joint mobility
- Decrease swelling

Long-term goals

- Improve range of motion
- Increase lower limb muscle strength
- Improve gait and functional mobility
- Restore independence in activities of daily living

Treatment protocol

Pain management

- Cryotherapy and thermotherapy
- Transcutaneous Electrical Nerve Stimulation (TENS)

Exercise therapy

- Quadriceps isometric exercises
- Progressive isotonic strengthening
- Hamstring stretching exercises
- Straight leg raise exercises
- Gluteal strengthening exercises
- Active and passive knee ROM exercises

Manual therapy

- Patellar mobilization
- Soft tissue release techniques

Functional rehabilitation

- Gait training
- Sit-to-stand training
- Balance and mobility exercises

Lumbar rehabilitation

- Core stabilization exercises
- Postural correction exercises
- Lumbar flexibility exercises

Outcome measures

- Visual Analog Scale (VAS)
- Range of Motion (ROM)
- Manual Muscle Testing (MMT)
- Functional mobility assessment

Discussion

This case report demonstrates the clinical presentation and physiotherapy management of advanced bilateral knee osteoarthritis associated with lumbar pain. The patient exhibited common symptoms of severe OA including pain, stiffness, quadriceps weakness, reduced ROM, crepitus, and swelling. Quadriceps weakness has been identified as one of the major contributing factors to functional disability and progression of knee OA [7].

Exercise therapy remains one of the most effective non-pharmacological interventions for managing knee OA. Strengthening exercises improve muscle stability, reduce joint loading, and enhance functional mobility [8]. In addition, stretching and mobilization techniques improve joint flexibility and reduce stiffness [9].

The associated lumbar pain observed in this patient may be related to altered gait mechanics and compensatory postural adaptations secondary to chronic knee dysfunction [10]. Therefore, lumbar stabilization and postural correction exercises were integrated into the rehabilitation program.

Previous studies have shown that conservative physiotherapy management can significantly reduce pain and improve quality of life even in severe osteoarthritis cases [11–15]. A multidisciplinary rehabilitation approach addressing both knee and lumbar impairments is essential for achieving optimal functional outcomes.

Conclusion

This case report highlights the significant role of physiotherapy in the conservative management of advanced bilateral knee osteoarthritis associated with lumbar pain. The patient presented with severe pain, reduced range of motion, quadriceps weakness, joint stiffness, and functional limitations, all of which are commonly observed in Grade IV osteoarthritis. A structured rehabilitation program focusing on pain reduction, muscle strengthening, flexibility exercises, joint mobilization, and lumbar stabilization was planned to address both primary and associated impairments. Physiotherapy interventions not only help in reducing pain and inflammation but also improve mobility, muscle performance, balance, and overall functional independence. Addressing associated low back pain through postural correction and core stabilization further enhanced the rehabilitation approach. This case emphasizes that even in advanced stages of osteoarthritis, non-surgical physiotherapy management can contribute substantially to improving quality of life, delaying disability progression, and enhancing the patient's ability to perform activities of daily living independently and effectively.

Author contribution

The author has contributed to the concept and design of the study, patient assessment, physiotherapy intervention, data collection, clinical documentation, literature review, manuscript preparation, editing, and final approval of the manuscript for publication.

Acknowledgement

The author sincerely acknowledges the support provided by the management and clinical staff of Aswini Hospitals, Nizampet, Hyderabad, for their assistance during patient evaluation and rehabilitation. The author also expresses gratitude to the patient for providing consent and cooperation throughout the treatment process and for allowing the publication of this case report for academic and scientific purposes.

Ethical considerations

Written informed consent was obtained from the patient for publication of this case report. Patient confidentiality has been maintained throughout the manuscript.

References

1. World Health Organization. Osteoarthritis fact sheet. Geneva: WHO; 2023.
2. Kolasinski SL, Neogi T, Hochberg MC, Oatis C, Guyatt G, Block J, et al. 2019 American College of Rheumatology/Arthritis Foundation Guideline for the Management of Osteoarthritis of the Hand, Hip, and Knee. Arthritis Care Res. 2020;72(2):149–162. Available from: https://doi.org/10.1002/acr.24131
3. Hunter DJ, Bierma-Zeinstra S. Osteoarthritis. Lancet. 2019;393(10182): 1745–1759. Available from: https://doi.org/10.1016/s0140-6736(19)30417-9

4. Sharma L. Osteoarthritis of the knee. N Engl J Med. 2021;384(1):51–59. Available from: https://doi.org/10.1056/nejmcp1903768

5. National Institute for Health and Care Excellence. Osteoarthritis: care and management. NICE Guidelines CG177; 2022. Available from: https://www.nice.org.uk/guidance/cg177

6. Bannuru RR, Osani MC, Vaysbrot EE, Arden NK, Bennell K, Bierma-Zeinstra SMA, et al. OARSI guidelines for the non-surgical management of knee OA. Osteoarthritis Cartilage. 2019;27(11):1578–1589. Available from: https://doi.org/10.1016/j.joca.2019.06.011

7. Segal NA, Glass NA, Torner J, Yang M, Felson DT, Sharma L, et al. Lewis. Quadriceps weakness and osteoarthritis progression. Arthritis Rheum. 2018;70(4):567–575. Available from: https://doi.org/10.1016/j.joca.2010.02.002

8. Fransen M, McConnell S, Hernandez-Molina G, Reichenbach S. Exercise for osteoarthritis of the knee. Cochrane Database Syst Rev. 2015;1:CD004376. Available from: https://doi.org/10.1002/14651858.CD004376.pub3

9. Deyle GD, Allen CS, Allison SC, et al. Physical therapy treatment effectiveness for OA of the knee. Ann Intern Med. 2020;132(3):173–181.

10. Suri P, Morgenroth DC, Hunter DJ. Epidemiology of osteoarthritis and low back pain. PM&R. 2012;4(5 Suppl):S22–S33. Available from: https://doi.org/10.1016/j.pmrj.2012.01.007

11. Cross M, Smith E, Hoy D, Nolte S, Ackerman I, Fransen M, et al. Global burden of osteoarthritis. Ann Rheum Dis. 2014;73(7):1323–1330. Available from: https://doi.org/10.1136/annrheumdis-2013-204763

12. Felson DT. Clinical practice: osteoarthritis of the knee. N Engl J Med. 2006;354(8):841–848. Available from: https://doi.org/10.1056/nejmcp051726

13. Katz JN, Arant KR, Loeser RF. Diagnosis and treatment of hip and knee osteoarthritis. JAMA. 2021;325(6):568–578. Available from: https://doi.org/10.1001/jama.2020.22171

14. Goh SL, Persson MSM, Stocks J, Hou Y, Welton NJ, Lin J, et al. Relative efficacy of different types of exercise for treatment of knee osteoarthritis: systematic review and network meta-analysis. Sports Med. 2019;49(5):743–761. Available from: https://doi.org/10.1007/s40279-019-01082-0

15. Wang SY, Olson-Kellogg B, Shamliyan TA, Choi JY, Ramakrishnan R, Kane RL, et al. Physical therapy interventions for knee pain secondary to osteoarthritis: a systematic review. Ann Intern Med. 2012;157(9):632–644. Available from: https://doi.org/10.7326/0003-4819-157-9-201211060-00007