



ISSN : 2350-0743



RESEARCH ARTICLE

DIVERSIFIED PHYSIOTHERAPEUTIC MANAGEMENT OF KNEE OSTEOARTHRITIS IN ADULT POPULATION A SINGLE CASE REPORT

¹Ms. Ishabhathi and ²Dr. Sumedharabra, P.T.

18th Semester, Department of Physiotherapy, Ssahs, Sharda University; ²Assistant professor, Department of Physiotherapy, Ssahs, Sharda University

ARTICLE INFO

Article History

Received 24th May, 2025
Received in revised form
27th June, 2025
Accepted 20th July, 2025
Published online 25th August, 2025

Keywords:

Knee osteoarthritis, Mobilization with Movement, Strengthening exercises, pain.

*Corresponding author: Ms. Ishabhathi

ABSTRACT

Background: Osteoarthritis is a disease characterized by degeneration of articular cartilage, which causes fissures, fibrillation, and finally loss of thickness of articular cartilage. Osteoarthritis begins as a result of trauma or repeated use of the joints that causes a change in the articular substance to the point of removal of the actual material through mechanical action. Prevalence of OA knee in India is 30% and maximum of OA knee affected population were individuals aged between 40 and 60 years and 19-30% of the total affected population were sedentary or unemployed. **Objectives:** the aim of this study was to find effectiveness of manual therapy in the case of adult patient of OA. **Methods:** Here is case of 49-year-old female with symptoms of knee pain since last 1 year. Outcome measures were Range of motion(ROM) measured by Goniometer, Muscle strength measured by Manual muscle testing and pain was measured by Numerical pain rating scale(NPRS). **Results:** Mobilization with movement and strengthening exercise showed marked improvement after the 2 week sessions in relation to pain, range of motion, muscle strength and prevent for further complications. **Conclusion:** this study finds that the manual therapy in the patients with OA patients can present wonderful results.

Copyright©2025, Ishabhathi and Sumedharabra. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Citation: Ms. Ishabhathi and Dr. Sumedharabra, P.T. 2025. "Diversified Physiotherapeutic Management of knee osteoarthritis in adult population a single case report." International Journal of Recent Advances in Multidisciplinary Research, 12, (08), 11516-11518.

INTRODUCTION

Approximately 10% to 20% of persons over 60 globally suffer from lower limb osteoarthritis (OA), a prevalent joint ailment that affects older adults. It is linked to a significant healthcare burden on both individuals and society.^[1] One of the main causes of musculoskeletal impairment is osteoarthritis.^[2] Millions of people worldwide suffer from osteoarthritis (OA), a debilitating musculoskeletal disorder that significantly affects the Indian populace.^[3] Pain, stiff joints, and functional restrictions brought on by the slow degradation of articular cartilage lower quality of life and increase medical costs.^[3] The frequency was 27% in persons under 70 years old and 44% in those over 80. Radiological evidence of grade 3–4 OA was observed in up to 34% of women and 31% of males over 70.^[4] Biomechanical alterations associated with varus knee OA is the compression of Tibial plateau causing a steepening of the medial plateau more than tibial bowing, particularly in the early stages of OA, femoral neck-shaft valgus angle decreases and lateral bowing of the femoral shaft increases with increasing grade of OA of the knee, lowering the condylar shaft angle and shifting the mechanical axis medially on the femoral side. A modest degree of OA causes the tibia to begin to bend, and it has been discovered that medial tibial

compression, not bowing, is more responsible for the advancement of medial OA.^[4] Risk factors associated with Knee OA are C^[5] Additionally, the patients had poor proprioception, which may have compromised their postural stability and raised their risk of falling.^[6] A number of factors contribute to the development and progression of osteoarthritis (OA), including age-related deterioration of articular cartilage and subchondral bone, limb overuse, overloading and malalignment, hereditary diseases, and metabolic syndromes (obesity, inflammatory reactions, and diabetes).^[7] Numerous clinical research on OA have been carried out, mostly focussing on structural targets like bone and cartilage while also reducing pain and inflammation. Only a small number of medications, such as sprifermin or some blood pressure medications, improved joint structure and function, and overall success was only minor. Furthermore, pain was reduced by targeting TrkA or TRPV1, but no medication was able to permanently stop or reverse the course of OA.^[7] Exercise treatment may help people with osteoarthritis in their knees by reducing symptoms and enhancing their functional status. Despite the shown practical advantages, there is currently no standardized, all-inclusive physiotherapy regimen that targets the cluster of physical and physiological dysfunction linked to illness.^[6]

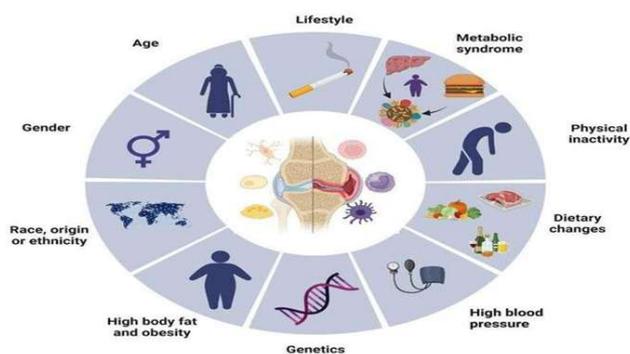
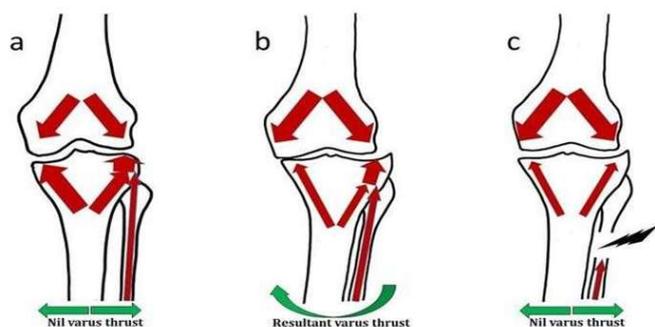


Table 1. Preand post ranges of movement of knee and hip joint

Range of motion	Pre treatment		Post treatment	
	Active	Passive	Active	Passive
Hip flexion	94	100	115	117
Hip extension	15	17	20	20
Hip abduction	35	42	43	45
Hip adduction	20	24	30	30
Knee flexion	95	110	117	120
Knee extension	0	0	0	0

Table 2. Preand post manual muscle testing of knee and hip joint

Manual muscle testing	Pre treatment	Post treatment
Hip flexion	3+	4+
Hip extension	3+	4+
Hip abduction	3+	4+
Hip adduction	3+	4+
Knee flexion	3+	4+
Knee extension	3+	4+

Table 3. Preand post NPRS score

	Pre treatment	Post treatment
NPRS score	7	2

CASE REPORT

A 49-year-old female came into the physiotherapy department of Sharda hospital with severe pain in right knee joint and difficulty in working and doing daily activities since last 1 year.

TREATMENT REGIME WEEK 1

FREQUENCY	INTENSITY	TIME	TYPE
THRICE A WEEK FOR 1 ST WEEK	Moderate	10 MIN	Hydrocollatoral
THRICE A WEEK FOR 1 ST WEEK	Moderate	10 MIN	Interferential Current therapy
THRICE A WEEK FOR 1 ST WEEK	0.8w/cm ² , 1mhz Frequency	8-10MIN	Ultrasonic Therapy
THRICE A WEEK FOR 1 ST WEEK	Acc to patient/60-65% of Patient's tolerance	10 TIMES WITH 10 SECOND HOLD	Progressive stretching for soleus, quadriceps, semi tendinosus, semi Membranosus
THRICE A WEEK FOR 1 ST WEEK	Mild	10 times with 10 Second hold	Knee isometrics

Patient was asymptomatic before 1 year back then she slips down the stairs after which she go to the general physician and took medications for that and got relieved but after one month she again start having pain so she started taking medicines and she got relieved when on medication but from last 15 days her pain got worsen so she visited orthopedic doctor in Sharda hospital who referred her to the physiotherapy OPD of the Sharda hospital. Pain was gradual in onset and located at the anteromedial compartment of the right knee joint with dull aching type of pain. The pain score was 6 according to the NPRS scale. The pain of the patient aggravates by walking prolong standing and during morning time and she felt relieved by taking medications and doing rest. The patient has no history of TB, blood pressure, diabetes and cardiac problems. On observation patient built was mesomorph with no signs of trauma or deformity present in the lower limb. The gate of the patient was antalgic. On palpation grade 1 tenderness was present at the anterior-medial aspect of knee. During examination goniometer was used to assess the range of motion of knee and hip and restriction in range of motion was found in knee flexion and extension. Strength of the muscles was evaluated with the help of Manual Muscle Testing(MMT). All superficial and deep sensations were intact when assessed. Radiological examination i.e. X-Ray of patient shows decrease in the medial joint line space and osteophyte formation in right knee joint. Osteoarthritis was identified in the patient. Physiotherapy sessions include thermotherapy, movement with mobilization, strengthening exercises and interferential therapy. Movement with mobilization include medial glide and rotational glide with over pressure applied by the therapist hand for 10 repetitions and two sets per session. The patient underwent physiotherapy session for 3 days per week for 2 weeks

DISCUSSION

This study hypothesized that Mobilization with Movement may be beneficial than conventional physiotherapy in improving pain and functions among patients with unilateral medial compartment Tibio-femoral knee osteoarthritis which is found to be true. These improvements may be due to the reversion of reflex pain inhibition. Alteration in motor activity may also be a sign of a reaction that is intervened at the level of the central nervous system [8]. Pain intensity scores in the functional tasks were minimal on presentation for the fourth consultation, representing changes from baseline ranging from 30 to 48 mm on the VAS, which are clinically relevant improvements [9]. Based on the difference are in pain measurement and functional walking, all samples experienced decreased pain and improved functional walking. Osteoarthritis knee can cause pain when accumulating weight, limited movement, and finally to the tendency in walking activities [10].

TREATMENT REGIME WEEK 2

Frequency	Intensity	Time	Type
Thrice a week For 2 nd week	Mild	5 min	Hydrocollatoral
Thrice a week For 2 nd week	Mild	7 min	Interferential Current therapy
Thrice a week For 2 nd week	0.8 w/cm ² , 1mhz Frequency	5 min	Ultrasonic Therapy
Thrice a week for 2 nd week	Acc to patient/60-65% of Patient's tolerance	10 times with 10 second hold	Self stretching for soleus, quadriceps, semi tendinosus, semi Memebranosus
Thrice a week for 2 nd week	Moderate	10 times with 10 second hold	Knee isometrics, dynamic quadricep strenthening, wall Squats upto 90 degree

TREATMENT REGIME WEEK 3

Frequency	Intensity	Time	Type
Thrice a week For 3 rd week	Mild	5 min	Hydrocollatoral
Thrice a week for 3 rd week	Acc to patient/60-65% of Patient's tolerance	10 times with 10 second hold	Self stretching for soleus, quadriceps, semi Tendinosus, semi memebranosus
Thrice a week for 3 rd week	Moderate	10 times with 10 second hold	Knee isometrics, dynamic quadricep strenthening, wall squats upto 90 Degree

The reduction in pain intensity and its maintenance probably reflects a combination of the effect of... the therapist and patient-applied MWM, but we are unable to separate the effects in this instance ^[9].

RESULTS

After the physiotherapy session for 2weeks, the NPRS score was reduced from 7 to 2. The patient was able to perform all movements with having pain and there is a marked improvement in muscle strength.

CONCLUSION

In this study mobilization with movement and strengthening exercise helps in reducing pain and improves overall quality of life of patient with knee osteoarthritis. After 6 sessions (3 days per week for 2 weeks) patient showed marked improvement in pain, range of motion and muscle strength.

Conflict of interest: The authors states that there is no conflict of interest.

REFERENCES

- Goh, S.L., Persson, M.S., Stocks, J., Hou, Y., Lin, J., Hall, M.C., Doherty, M. and Zhang, W., 2019. Efficacy and potential determinants of exercise therapy in knee and hip osteoarthritis: a systematic review and meta-analysis. *Annals of physical and rehabilitation medicine*, 62(5), pp.356-365.
- Shamsi, S., Al-Shehri, A., Al Amoudi, K.O. and Khan, S., 2020. Effectiveness of physiotherapy management in knee osteoarthritis: A systematic review. *Indian Journal of Medical Specialities*, 11(4), pp.185-191.
- Pundkar, A., Shrivastav, S., Chandanwale, R., Jaiswal, A.M. and Goyal, S., 2024. A Systematic Review of the Management of Knee Osteoarthritis by Proximal Fibular Osteotomy in the Indian Population. *Cureus*, 16(2).
- Shanmugasundaram, S., Kambhampati, S.B. and Saseendar, S., 2019. Proximal fibular osteotomy in the treatment of medial osteoarthritis of the knee—A narrative review of literature. *Knee surgery & related research*, 31(1), p.16.
- Shtroblia, V., Petakh, P., Kamyshna, I., Halabitska, I. and Kamyshnyi, O., 2025. Recent advances in the management of knee osteoarthritis: a narrative review. *Frontiers in Medicine*, 12, p.1523027.
- Khan, S.A., Parasher, P., Ansari, M.A., Parvez, S., Fatima, N. and Alam, I., 2023, February. Effect of an integrated physiotherapy protocol on knee osteoarthritis patients: a preliminary study. In *Healthcare* (Vol. 11, No. 4, p. 564). MDPI.
- Grassel, S. and Muschter, D., 2020. Recent advances in the treatment of osteoarthritis. *F1000Research*, 9, pp.F1000-Faculty.
- Hiroshi Takasaki, PT, MSc, Toby Hall, PT, PhD and Gwendolen Jull, PT, PhD. Immediate and short-term effects of Mulligan's mobilization with movement on knee pain and disability associated with knee osteoarthritis – A prospective case series. *Physiotherapy Theory and Practice*, Early Online:1–9, 2012.
- Rita Sharma. Effectiveness of Mobilisation with Movement Versus Conventional Physiotherapy on Pain and Functions Among Patients with Unilateral Medial Compartment Tibiofemoral Knee Osteoarthritis. *International Journal of Research and Review* Vol. 9; Issue: 9; September 2022.
- Tiar Erawan, Sudaryanto, Rosmin, Hasbiah, Agussalim. Differences in the Effects of Maitland Technique and Muligan Technique on Pain Changes and Functional Walking in People with Osteoarthritis Knee. *Journal of Novel Physiotherapies Research Reviews* 3(1), 45-50.
- Ravi Kumar Gupta, Anand Heggannavar. Quantitative effects of proprioceptive exercises and mulligan's mwm in subjects with osteoarthritis knee—a randomized controlled trial. *International Journal of Therapies and Rehabilitation Research* 2015; 4 (4): 191-200
- Abhishek P. Mahalle, Dr. Rashmi Walke. Interferential therapy and strengthening exercises in management of knee osteoarthritis. *Journal of Pharmaceutical Negative Results* | Volume 13 | Special Issue 6 | 2022