

Impact of Physiotherapy Rehabilitation on Patients with Bilateral Osteoarthritis Knee Pain - A Case Report

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INTRODUCTION

Osteoarthritis (OA) is a severe joint disease that affects more than 60 per cent of the elderly. Primary OA pathogenesis is an intrinsic cartilage disorder in which biomechanical and metabolic changes contribute to its breakdown. Although OA is a phase of multifactorial disease, early cartilage damage, and ultimate loss of articular cartilage are considered essential for OA progression. Other essential pathophysiology of OA is bone or joint deterioration, in addition to cartilage degeneration. Although multiple accounts of joint deformity such as osteophytes, subchondral osteosclerosis and bone cysts have been found to be important pathological hallmarks for OA.⁽¹⁾

As life expectancy increases and the age at which patients are diagnosed with knee OA decreases, exploring alternative therapies for treating knee OA becomes necessary. The aim of this case study is to identify a conservative approach to treatment with physical therapy to relieve symptomatic OA pain in the knee and to achieve functional results.⁽²⁾

The patient was a 53 year old male with complaints of pain in right and left knee joint while walking, standing for extended periods of time, and also while performing functional activities of the affected joint. The aim of physiotherapy for the patient was to return the patient to normal functional activities. After completion of physiotherapy, the patient showed minor changes in the range of motion of right and left knee flexion within functional limits, improvement in strength of both the knee joint muscles and independence in completing a home exercise program. Pain was also decreased according to numerical pain rating scale.

PRESENTATION OF CASE

The patient was a 53-year-old male, who presented to physiotherapy department with complaints of bilateral knee pain since 3 years. He had history of bilateral knee OA. He reported receiving some kind of ayurvedic treatment which provided pain relief for some time but not permanent. Pain increased on walking for more than 50 minutes and standing continuously for more than 30 minutes. The pain was intermittent throbbing and dull present around both the knees. Pain in right knee was more than pain in left knee. The patient had radiographs which indicated osteoarthritis in both knees. Radiographs showed KL grading 2 in left knee joint and KL grading 3 in right knee joint.⁽³⁾ Patient expressed the main concern of bilateral pain in the knee. Tests and assessments were performed during the patient's therapy to determine the knee joint range of motion, hip and knee manual muscle strength. Crepitus was heard in right knee.

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Diagnostic Assessment

Numerical pain level scale (NPRS) – At the beginning of the first and last treatment sessions, the patient was asked to rate his knee pain on NPRS scale. The NPRS scale is a scale where 0 indicates no pain at all and 10 indicates extreme pain which requires immediate medical attention.

First Treatment Session		Score
	Right knee	6/10
	Left knee	5/10
Last treatment session		
	Right knee	2/10
	Left knee	2/10
Numerical Pain Rating Scale Scores		

Active Range of Motion

There was observed lack of knee extension therefore achieving complete knee extension could improve his gait and decrease pain associated with walking and standing activities.

First Treatment Session		Range of Motion
Knee flexion	Right knee	110 degrees
	Left knee	120 degrees
Knee extension	Right knee	-5 degrees
	Left knee	-3 degrees
Last treatment session		
Knee flexion	Right knee	115 degree
	Left knee	125 degree
Knee extension	Right knee	-3 degree
	Left knee	-2 degree
Active Joint Range of Motion		

Manual Muscle Testing (MMT)

First Treatment Session	MMT Score	Last Treatment Session	MMT Score
1. Hip extension	4	1. Hip extension	4
Right hip	4	Right hip	4
Left hip	4	Left hip	4
2. Hip abduction	4	2. Hip abduction	4
Right hip	4	Right hip	4
Left hip	4	Left hip	4
3. Knee flexion	4	3. Knee flexion	4
Right knee	4	Right knee	4
Left knee	4	Left knee	4
4. Knee extension	4	4. Knee extension	4
Right knee	4	Right knee	4
Left knee	4	Left knee	4
Manual Muscle Testing Scores			

DISCUSSION OF MANAGEMENT

The treatment plan was introduced in an outpatient facility with one on one physiotherapy sessions and included measures intended to increase muscle strength and decrease pain. The sessions were 30 minutes long, every day for 2 weeks at a moderate intensity level. The evidence collected from patient’s history and evaluation showed that continued physical therapy would help the patient. The goal of physiotherapy was to increase the range of motion and strength of both the knee joints and minimize the pain. Interventions included patient education, where patient was given complete education of the exercise program for his condition. Electrotherapy treatment included use of therapeutic ultrasound for 7 minutes on each knee joint before performing the exercise, along with application of interferential therapy (IFT) on both the knee joints.

At the start of the therapy, isometric strength exercises were introduced to improve muscle strength in a pain free manner. Quadriceps, gluteal muscles, hamstrings were strengthened. Progressive resistive exercises were given after the patient performed isometrics without pain. Resistive exercises were used to increase the length of hamstrings muscle. Active range of motion exercises were also incorporated. The patient attended all the therapy sessions. After physical therapy the patient displayed decreased symptoms of subjective knee pain from 6/10 to 3/10 for the right knee and 5/10 to 2/10 for the left knee. Minor changes in the right knee flexion range for 110 to 115 degrees and left knee from 120 to 125 degrees within functional limits and pain-free. He also showed minor changes in knee extension.

DISCUSSION

While knee OA progression differs from patient to patient, exploration of the progression of the therapies that decrease pain should be continued.⁽²⁾ The lifetime risk of symptomatic knee OA is almost 1 in 2 for those with a knee injury history and almost 2 in 3 for obese people.⁽⁴⁾ Mechanical factors such as obesity contribute substantial to OA aetiopathogenesis.⁽¹⁾ Ultrasound therapy can be helpful to patients with knee osteoarthritis. Therapeutic ultrasound which may be clinically important is commonly used for its possible effects on both knee pain and function.⁽⁵⁾

CONCLUSIONS

This case report shows how conservative physiotherapy care can be used to rehabilitate symptomatic arthritic knee pain in a middle age male through multiple interventions. This has been demonstrated by increase in the active range of motion, muscle strength, and reduced symptomatic pain in the knee.

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