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Physiotherapy Rehabilitation in Elderly Patients with Postoperative Femoral Neck Fracture - A Case Report

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ABSTRACT

The femoral neck fracture in the elderly is a major public health concern. Femoral neck fractures are a prevalent type of hip fracture that has a significant morbidity and mortality rate. As a result, the focus of this study is on physical therapy procedures for older individuals who have had their proximal femoral fractures surgically repaired. Physical therapy aids in the postoperative treatment of patients with proximal femoral fractures by increasing muscular strength, improving walking safety and performance, and understanding the patient's condition, allowing the elderly to become more independent. To avoid respiratory issues and other complications that result from immobility, it is critical for such patients to continue to stay orthostatic and walk as soon as possible, regardless of the nature of the fracture or the material used for fixation, though this is frequently not possible due to the patient's general health status.

Introduction: This case study is focused on the treatment of a person with a femoral neck fracture. Femoral neck fractures are prevalent in the older population, reflecting a major cost of health insurance.

Case Description: This is the case of 60 years old female who sustained a fracture of the neck of the femur after she meet with an accident. She underwent total hip arthroplasty. The patient was mesomorphic. Physical therapy rehabilitation provided care in ways including postoperative weight-bearing, gait training, improving the strength of quadriceps and hamstring muscles.

Conclusion: According to the findings, the decisive surgical procedure and early physiotherapy rehabilitation contributed to the patient's functional goals progressing, which is an important understanding of a successful recovery.

Keywords- Fracture, Femur fracture, Trauma, Osteogenesis imperfecta, Range of motion, Osteomyelitis, Osteoporosis, Osteopenia, Aged, Physiotherapy, Rehabilitation.

INTRODUCTION

In recent decades, the world population's survival has risen globally(1). This rise in longevity associated with today's more active elderly lifestyle and the chronicity present in this demographic, such as a loss in coordination, muscle strength , bone mineral density and reflexes, results in osteoporosis and osteopenia, has led to rise in cases of trauma and thus fractures in the elderly population (2). In older people, fractures are the leading cause of injury, physical impairment, and death. The risk of fracture can be increased by technical factors during surgery(3). The consequences of the ageing population worldwide were

linked to the growth in the total number of patients with hip fractures from 1.7 million per year in 1990 to 6.3 million per year in 2050, as well as the rise in socio-economic expenditures.(4). Therefore, the purpose of care for these patients is to retain their functions, their mobility and their everyday activities(5). Not merely treating broken bones, but reducing morbidity and death associated with hip fractures. However, there is also a requirement for therapy of general weakness. (6). Delirium is a common complication in those who have had a hip fracture. Awareness of falls following hip fracture surgery during hospital stay is missing, in particular, residential treatment, chronically ill people and those with cognitive disability are included(7). The day they fall, forty-five percent of the patients were mentally unstable (8). Intervention measures, including the prevention and treatment of delirium and sleeping disorders, as well as increased care of male patients, may allow for fall prevention strategies(9). Patients with hip fractures may be unable to regain independence due to severe lower extremity oedema and diminished oedema strength of knee extension, especially after surgery(4). Osteoporosis, or low bone mineral density (BMD), puts elderly adults at risk of fractures. (10). Specific reasons for the successful treatment of these elderly patients focus on patient comorbidities, specific clinical process management, and more or less early post-operative recovery(11). In the short term, the type of fracture, surgery, special care, and early active recovery improve the functional outcome for patients lying in bed after surgery.

In postoperative treatment for older people, improvement in the standard of care and recovery, with an emphasis on fall prev ention based on these outcomes, should be i ntroduced(12).

PATIENT INFORMATION

A patient 60 yrs old female housewife who lives in Nagpur city. Hand dominance right hand. She was apparently alright 8 days back. She was met with road traffic accident date 1st November 2020. After 1 hour she was admitted in AVBRH hospital, Sawangi Meghe, Wardha. by her relatives. X-rays on admission revealed a displaced left neck of femur fracture. The patient had complained of left hip pain. She was having diabetes mellitus and hypertension since 17 -18 yrs. Surgery was done. Total hip arthroplasty, along with the improvement of implants, has earned praise for the prevention of displaced femoral neck fracture. Intensive recovery is initiated in order to better recover physical activity after surgery. Post-operation patient was treated with IV antibiotics, antiplatelet, analgesics. Later physiotherapy consultation accompanied the surgery patient four days later post-surgery. Post-operatively patient had chief complaints of pain in right leg, which patient describes as dull-aching with intensity of 6/10 at rest and 8/10 with activity on NPRS, aggravated on activities, also unable to perform range of motion (ROM) at hip due to the plaster slab and trouble in achieving activities of daily living such as self-hygiene.

Clinical findings:

The patient in the supine position was examined with both shoulder at same level with left lower limb covered in plaster slab (no ROM possible at left hip). On physical examination, vital signs including temperature were normal, pulse rate 90beats/min, RR-24 breaths/min, BP-130/90mmhg.The hip was unable to palpable due to presence of plaster cast and dressings. Patient was advised for not bearing weight on the operated left leg.

Timeline	
Diagnosed with fracture of neck of femur	01/11/2020
Total hip arthroplasty	02/11/2020
Physiotherapy rehabilitation	07/11/2020
Discharge	20/11/2020

Fig:-1 Total hip arthroplasty A-P view

Physiotherapy Intervention:

Pre-operative Management

The short-term aim was to minimize discomfort and oedema, avoid respiratory problems, preserve and improve the mobility range and strength of the unimpacted limbs in the joint. Long-term goals included preventing respiratory problems, reducing discomfort, and increasing strength and joint range of motion.

Cryotherapy was used in the mid-thigh region to relieve pain. Movement of the ankle toe, static hams, quads and glutei to maintain the strength of hamstrings, quadriceps and glutes. Bridging exercise for retaining primary strength (using normal leg and both elbows). Active movements of unaffected limbs to preserve their power. Deep breathing, relaxation methods and spirometry eliminate complications in the respiratory system.

Post-operative Management

PHASE 1(1 -2 weeks)

The patient received physiotherapy for 15 days on a regular basis in the orthopedic inpatient ward by a skilled orthopedic physiotherapist. With the goal of improving independent walker walking with non-weight bearing and minimal assistance for remembering daily activities, the sessions were initiated. The focus of treatment and recovery should be on regaining physical capacity and avoiding complications. It seems like the most important complications to avoid are delirium and sleeping problems since it seems that these complications are related to an increased risk of dropping during hospital stay. For left thigh pain and elevation with a pillow to position the left lower limb, cryotherapy with ice packs was given to manage pain and muscle spasm.

PHASE 2 (3-4 weeks)

We also provide rehabilitation exercises such as isometric contractions for the left hamstrings, quadriceps, and gluteus muscles, each with a 10 second hold and ten repetitions. Ten repetitions of active aided left hip flexion-extension, abduction – adduction, and angle finger toe movements were done. The physiotherapy sessions were aimed at preserving muscle integrity for the lower left limb and strengthen the lower right limb and both upper limbs to facilitate independent walker walking with non-weight bearing and limited assistance for everyday activities. Progressively, active resistive workouts with weights for the upper limbs and a weight cuff for the right lower limb were used with suitable safety precautions. Family members were taught and informed on how to carry out the home fitness programme according to a stated plan. Further progress in the healing was recommended after the first follow-up, which would consist of removing the plaster cast and returning the range of motion to the left hip.

Follow up and outcome:

Pre-outcome	Post-outcome
Patient had complain of pain to the hip and knee. Inability to stand or walk. Decrease range of motion. Patient frequently complains of night pain. Deformity of the thigh. Patient's leg appears shorter than unaffected leg.	The patient was able to walk without any support or assistance by the end of the session. She was also independent. The patient was willing to do physiotherapy and was well motivated and did whatever was asked him to do. Home exercises program was also tough to the patient. She did the home exercises regularly and also visited the department regularly. The patient was psychologically fit which was a positive factor which helped to treat him properly.

	Pain	**ROM (affected limb) Active ROM**	**MMT (affected limb)**	**LEFS score**
1-2 weeks	4/10 on rest. 6/10 during movement.	Flexion-80 Abduction-35 Lateral rotation-30 Medial rotation-35	Flexion-3/5 Abduction-3/5 Lateral rotation-2/5 Medial rotation-2/5	50
3-4 weeks	No pain on rest. 2/10 during movement.	Flexion-100 Abduction-40 Lateral rotation-35 Medial rotation-40	Flexion-4/5 Abduction-4/5 Lateral rotation-4/5 Medial rotation-4/5	78

RESULTS

Improvements were observed in the initiation to active assisted to active movements of the left hip flexion- extension and abduction – adduction and also in independence of activities of daily living with minimal assistance or supervision. The improvement was observed gradually as the patient progressed from NWB walking with walker with minimal assistance to NWB walking with walker without assistance and only supervised.

DISCUSSION

The study shows that patients can take a few months to regain normal muscle function after undergoing surgery. The doctor must consider the type of fracture as well as the surgical fixing material in order to provide a safe start to physical rehabilitation. (7) These data can interfere with the action, which in some activities involves weight bearing on the leg, walking time, and restriction. It is crucial for this patient to maintain orthostatic and walk as quickly as feasible, regardless of the type of fracture or fixing material used. (8) Respiratory disorders and other issues inherent in lack of mobility can be avoided by therapists, although this is often not possible because of the general state of health of the patient. (9) Using weight bearing exercise of the lower limb improves the functional outcome measure. Physical therapy helps patients with femoral neck fractures recover from surgery by boosting muscle strength and improving walking protection and performance, allowing the elderly to be much more steady.(10)

CONCLUSION

This study suggests that the definitive surgical method and early rehabilitation of physiotherapy contributed to improvement of the patient's functional objectives, which are a significant understanding of a good recovery.

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Informed consent: Proper consent was taken from patient's son for writing case report.

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