Case report

Rehabilitation of a 55-year-old Man's Inter Trochanteric fracture: A Case Report

ABSTRACT

Background:

The most common fractures seen in senior osteoporotic patients are intertrochanteric (IT) frac tures, which are usually caused by a simple fall in the house. The number of old patients is ex pected to double by 2040 due to an increase in the number of elderly patientswith osteoporosis. Understanding key aspects of IT fracture, therapysuch as stability, reduction, an d the involvement of the posteriomedial and lateral walls, will aid in implant selection for a b etter outcome. This fracture interferes with the normal functioning of the body in day-to-day life. Therefore, physiotherapy rehabilitation after surgery is essential to get back to normal functioning.

Clinical Presentation: A 55- year-old male patient who came with complaints of pain and swelling in right hip and was unable to walk. Patient was under the influence of alcohol when he fell from the bed . He experience sudden and severe pain in right hip and was unable to stand. His relatives brought him to Acharya Vinobha Bhave Rural Hospital (AVBRH), Sawangi, Wardha, Maharashtra for further management.

Conclusion: The Intertrochanteric fracture of femur is a form of fracture with a high occurrence. The above case study concludes that a traditional surgical procedure combined with timely planned physiotherapy rehabilitation contributed to progressive improvement in functional goals, which is an important factor in achieving a good recovery in such post-operative cases.

Key Words- Intertrochanteric fracture, Dynamic Hip Screw (DHS), Physical Therapy.

INTRODUCTION:

The most common fractures seen in senior osteoporotic patients are intertrochanteric (IT) fractures, which are usually caused by a simple fall in the house. The number of old patie nts is expected to double by 2040 due to an increase in the number of elderly patients. Under standing key aspects of IT fracture therapy, such as stability, reduction, and the involvement of the posteriomedial and lateral walls, will aid in implant selection for a better outcome.(1)M ortality and morbidity following femur intertrochanteric fractures appear to be higher than pre viously thought. Although younger patients have better functional outcomes, but also can be achievedin the eighth and ninth decades of life

and the group of stable intertrochanteric fractures, early operation and the use of internal fixat ion can reduce mortality and morbidity while improving functional outcomes. Skeletal tracti on can hasten the healing of an unstable intertrochanteric fracture, resulting in less complicati on and generally good functional outcomes. In the treatment of IT fractures of the proximal fe mur, the dynamic hip screw is well recognised.In 1989, Boyd and Griffinsuggested classification of type I and type II intertrochanteric femur fractures. Recent studies suggests that Dynamic Hip Screw is a safe, acceptable, and reliable fixation approach for intertrochanteric femur fractures. The goal of this study is to see how physiotherapy rehabilitations works post-surgery for Intertrochanteric fractures.(2)

People who suffer from these types of fractures are on average 52 years old(3). The major cause is medium or high-energy trauma where the proximal end is subjected to increased stresses.With the low forces experienced during trauma, the main pathogenic cause for the older group of patients is bone fragility due to osteoporosis(4,5).

Females accounted for 60.86 per cent of all eligible elderly people. Accidents involving electric bikes accounted for 32.42 per cent of all injuries, with 39.62 per cent resulting in high-energy injuries**.**(6)The gold standard treatment for such fractures is Dynamic Hip Screwing (DHS) and only choice fortreating complex fractures These fractures have a major effect on the life and wellbeing of individuals. Since surgical fixation, these people are said to be expected to return to work after 6-8 months.(7)

The emphasis of this research is on the type of physiotherapy this patient can obtain. This case report aims to review the latest protocol for the recovery of 55- year-old male patient, a chronic alcoholic who fell out of the bed under the influence of alcohol, had a Intertrochanteric fracture that has been surgically repaired, with the goal of providing some

advice, especially on four key topics: hip joint range of motion exercises, immobilization, weight bearing, and continuing rehabilitation.(8)

PATIENT INFORMATION:

A 55- year-old male, retired engineer, right dominant, married since 34 years, a chronic alcoholic fell down from the bed under the influence of alcohol. He started complaining of severe pain and swelling in the right hip and was unable to walk. Patient was under the influence of alcohol when he fell from the bed . He experience sudden and severe pain in right hip and was unable to stand . The pain was aggravated by movement and relived by immobilization. Then he was taken to local physician where he took indigenous treatment but had no relief. Then his relatives took him to Acharya Vinobha Bhave Rural Hospital (AVBRH), Sawangi, Wardha, Maharashtra. X-ray was done and he was diagnosed with Intertrochanteric fracture of femur where he was advised for surgery. Dynamic Hip Screw was applied for the fixation of Intertrochanteric Fracture. Post -operatively patient was treated with drugs, IV fluid, antibiotics and medications. He has a past history of Diabetes mellitus. Then the patient was recommended for physiotherapy for rehabilitation, which aimed to restore mobility, regain full range of motion and develop muscle strength.

CLINICAL FINDINGS:

The patient was conscious and well oriented. Prior consent was taken from the patient before the physical examination. The patient was examined in the supine position. On inspection it was observed that right leg was slightly abducted, slight externally rotated, the knee was in the 20 degrees of flexion, both ankles were slightly plantarflexed, the pillow was kept between both the legs. On palpation local temperature was slightly raised, diffuse swelling was present around the right knee, no marked oedema, no marked muscle wasting, grade 2 tenderness was marked over anterior joint line and greater trochanter also severe pain was present at the operative site, VAS Scale score was 9/10 on activity and at rest was 6/10.

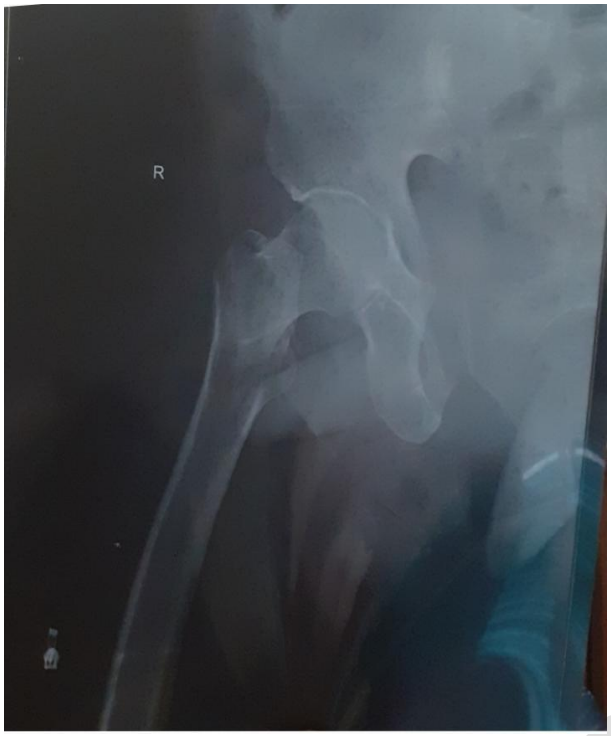

Figure 1: Pre-operative X-ray of Intertrochanteric fracture of right femur

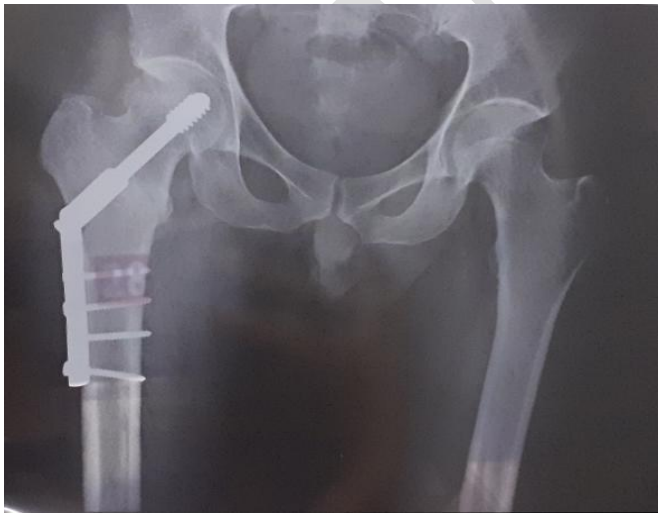

Figure 2: Post-operative X-ray of Intertrochanteric fracture of femur with Internal Fixator as (DHS) Dynamic Hip Screw

List 1: TIMELINE:

Events	Date
Date of incident	06/09/2021
Visited Local Physician	06/09/2021
Visited AVBRH	10/09/2021
Diagnosed with IT Fracture	11/09/2021
Underwent surgery, DHS	17/09/2021
Referred Date	20/09/2021
Started Physiotherapy	20/09/2021

MEDICAL MANAGEMENT: -

Patient visited AVBRH with the major complaints of pain and swelling around the hip joint, due to which he was admitted. X-ray of lower leg revealed Intertrochanteric fracture. An ice pack was advised for swelling and right leg was immobilized. After 5 days he underwent surgery.

- **Preoperative medications** – Inj. Tramadol 50 mg TDS, Tab chymotrypsin TDS, Tab Zerodol SP BD, Tab calcium, Sachet Vit D3.
- **Post-operative medications** - Tab calcium 500mg BD, Tab cefixime 200mg BD, Tab Dolo 650mg TDS, Tab Pantoprazole 40mg OD, Inj. paracetamol 100ml SOS.

Examination Findings:

MMT cannot be assessed as post operatively hip joint was immobilized for a week

Table 1: Range of Motion assessment on POD- 3

Joint	Lt Active	Lt Passive	Rt Active	Rt Passive
Hip				
Flexion	0-110°	0-117°	0-50°	0-60°
Extension	0-15°	0-18°	0-5°	0-10°
Abduction	0-40°	0-48°	0-10°	0-15°
Adduction	0-26°	0-30°	0-5°	0-5°
Knee				
Flexion	130°	135°	0°-45°	0-50°
Extension	130°-0	135°-0	45°-0°	50°-0
Ankle				
Plantar flexion	0-50°	0-50°	0°-20°	0-30°
Dorsi flexion	0-10°	0-10°	0°-5°	0-10°

Table 2: Range of Motion assessment on POD- 3 and on 20th day of affected leg (right)

Joint	POD-3rd	POD-20th
Knee flexion	0°-45°	0°-120°
Knee Extension	45°-0°	120°-0°
Ankle planter flexion	0°-20°	0°-45°
Ankle Dorsiflexion	0°-5°	0°-15°

THERAPEUTIC MANAGEMENT:

The patient was referred to the physiotherapy department. The rehabilitation was planned in phases and administered accordingly.

List 2: GOALS:

PHASES	Goals of Treatment (Post-Operative)
PHASE 1	To reduce pain and inflammation, reduce oedema, restore mobility, increase range of motion, soft tissue mobilization, strengthen the lower limb muscles, prevent bedsores, walking with crutches and restore ADL activities.
PHASE 2	To increase range of motion, strengthening the lower limb muscles, soft tissue mobilization, stretching of appropriate muscles.
PHASE 3	Initiation of partial weight-bearing, balance training, gait training and increasing the weight-bearing gradually over the weeks.

POST-OPERATIVE MANAGEMENT:

Phase 1 (0-7th day)

Initially cryotherapy thrice a day is advised with application of modality (IFT for minimum of 10-12 minutes for at least a week) to reduce pain and swelling. Breathing exercises taught to increase lung capacity post-operatively. Active assisted bed mobility exercises taught for ankle and knee joint which includes ankle toe movements,static quads, static hams, static glutes to strengthen isolated muscle groups, also heel slides and bed rolling, hip joint is immobilized for 1 week. Patellar mobilization started.

Phase 2 (8th – 14th day):

Exercises taught in the first week will be continued in addition to that CPM was applied to restore initial hip and knee movements, with passive range of motion exercises for hip and knee. Continuing patellar mobilization with inclusion of stretching for Lower limb.Isometrics were continued for quadriceps, hamstring and glut. Non-weight-bearing aerobic exercises were given. Modalities for pain and inflammation were used when required.Soft tissue mobilization was given manually.

Phase 3 (14th – 21st day):

Most of the exercises were continued as in phase 2.

Partial weight-bearing was initiated from the 3rdweek.

Partial weight-bearing started using crutches.Isometrics and strengthening exercises for lower limb were given with partial weight-bearing for lower limb muscles. Stretching exercises for hams, quads and other lower limb muscles were continued. Weight-bearing was increased progressively.

DISCUSSION:

From 1989 to 2011, 15 cases were followed up on for an average of 17 months (2–58 months) using eight different fixation devices. An initial mortality rate of 13% (n = 2) was observed. All of the females (n = 8) had low energy trauma, while the majority of the males (83 percent; n = 5) had high energy trauma. In 20% of cases, the diagnosis was delayed or missed. As a result of the physiotherapy treatment, the patient's range of motion has expanded, and he or she has begun to bear weight on the limbs. The key goals were patient education, secondary problem avoidance, and maintenance, as well as quadriceps and hamstring muscle strengthening. The patient has resumed a regular walking pattern and has experienced pain reduction, as well as the ability to walk without assistance. Physiotherapy management is an essential component of rehabilitation in order to return to a normal routine and improve quality of life.

CONCLUSION:

The IT fracture is a form of fracture with a high occurrence and is a complicated fracture to treat. IT fractures are well-managed with DHS fixation, which offer excellent anatomical reduction, preserve articular congruity, facilitate early mobility, reduce post-traumatic osteoarthritis, and achieve optimum function. The above case study concludes that a traditional surgical procedure combined with timely planned physiotherapy rehabilitation contributed to progressive improvement in functional goals, which is an important factor in achieving a good recovery in such post-operative cases. Preoperative preparations must be thorough and comprehensive. Early mobilization and a stronger practical performance are facilitated by well-maintained articular congruity and stable fixation.

Informed Consent:

Written and Oral informed consent was obtained from the participant included in the study. Additional informed consent was obtained from all individual participants for whom identifying information is included in this manuscript.

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