

Case Series

Hip fractures associated with concomitant upper limb fractures: a case series

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ABSTRACT

Elderly patients are at risk of fractures of distal radius, proximal humerus, spine and hip even due to trivial low energy falls. Hip injuries are commonly associated with concomitant ipsilateral upper limb injury because of a protective reflex of shielding their body from fall using their shoulder or outstretched hand. Here we presented a case series of 3 elderly patients who came to us with hip fractures and concomitant ipsilateral upper limb fractures. The injuries were adequately managed with splintage and operative procedures. Post-operatively mobilization was challenging. But patients were successfully mobilized with the help of relatives and physiotherapists. Concomitant hip fractures with associated ipsilateral upper limb fractures are quite common in elderly and difficult to treat. Post-operatively mobilization of patient and functional outcome is hampered. Proper counselling by operating surgeon, physiotherapy and postoperative rehabilitation with the help of relatives and assisting devices provides good outcome. In cases of hip trauma in old age, one should always thoroughly examine and screen for upper limb injuries. So that early appropriate treatment and mobilization can be done with good functional outcome.

Keywords: Concomitant fractures, Ipsilateral, Hip trauma, Upper limb trauma

INTRODUCTION

Elderly patients are at risk of fractures of distal radius, proximal humerus, spine and hip even due to trivial low energy falls.¹ These fractures have a significant economic impact and also increase public health burden.¹ Hip fractures are common fragility fractures in elderly.² The demographic transition to people with longer life expectancy, the incidence of hip fractures have increased.² These fractures cause high rates of complications, hampered function with reduced quality of life, morbidity and mortality.² Osteoporosis and old age are two most important risk factors for neck of femur and upper limb fractures.³ Prevalence of concomitant hip and upper limb fractures is between 3.7-4.7%.¹ Chronic conditions like cardiovascular diseases, poor visual acuity, diabetes mellitus or neurologic disorders are dominant risk factors which lead to longer hospitalization, higher complication

rates and mortality.³ Many studies have strong association of hip fractures in elderly with upper limb fractures.²

The objective of this study was to determine the post-surgical functional outcome of hip fractures associated with concomitant upper limb fractures.

CASE SERIES

Case 1

A 60 years old female patient, resident of local vicinity presented to our tertiary care center with complaints of pain around left hip and left wrist after allegedly history of slip and fall one day back while walking. There wasn't any history of head/chest injury nor ear, nose and throat (ENT) bleed. Medical history revealed patient was a known case

of hypertension and bronchial asthma since 5 years and was on oral medications for the same.

Local examination of left lower limb and left upper limb gave following findings.

Left lower limb shortened and in external rotation with swelling and tenderness around the hip, and painful range of motion around hip joint.

Left wrist showing marked swelling and tenderness, with bruising present over anterior aspect of wrist and painful range of motion around the wrist.

Plain radio-graphs were done, and were suggestive of neck of femur fracture of left femur with intra-articular distal end radius fracture of left wrist.

This patient was managed with cemented bipolar hemiarthroplasty for neck of femur fracture and volar plating with k-wire for distal end radius fracture.



Figure 1: Pre-operative hip fracture in case one.



Figure 2: Pre-operative hip fracture in case one.

Case 2

A 74 years old female, resident of local vicinity brought by relatives to our tertiary care center came with complaints of, pain around right hip and right forearm after alleged history of slip and fall two days back. There wasn't

any history of head/chest injury nor ENT bleed. Medical history revealed that patient was a known case of hypertension and bronchial asthma since 10 years and was on oral medications for same.

Local examination of right lower limb and right forearm gave following findings.



Figure 3: Post-operative hip fracture in case one with bipolar hemiarthroplasty done.



Figure 4: Pre-operative wrist fracture in case one.

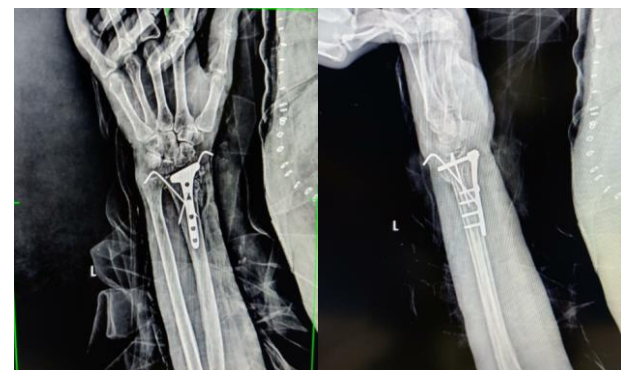


Figure 5: Post-operative wrist fracture in case one with distal end radius plating done.

Right lower limb shortened and in external rotation with swelling and tenderness around the right hip, associated with painful range of motion around hip joint. Upper part

of right forearm showing marked swelling and tenderness, with painful range of motion round the elbow.

Plain radio-graphs were suggestive of, neck of femur fracture of right femur with undisplaced radial head fracture on right side.

This patient was managed with cemented bipolar hemiarthroplasty for neck of femur fracture and radial head fracture was conserved.

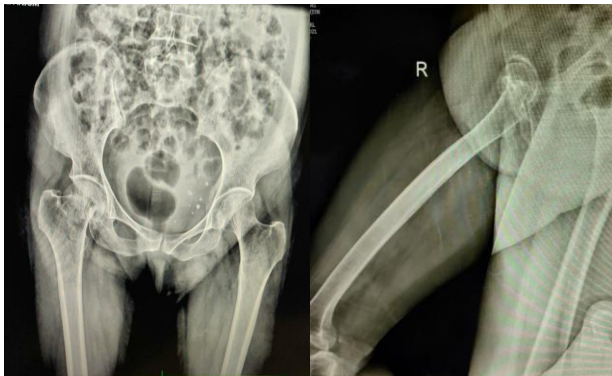


Figure 6: Pre-operative hip fracture in case two.



Figure 7: Pre-operative wrist fracture in case one.

A 63 year old male, resident of local vicinity brought by relatives to our tertiary care center came with complaints of pain and swelling around right hip and right mid-arm after alleged history of slip and fall. Patient was immediately taken to nearby health center where he was managed conservatively and referred to higher center for further management. There wasn't any history of head/chest injury nor ENT bleed. On medical history, it was revealed that patient was a known case of schizophrenia since 30 years with drug induced parkinsonism since 2 years and is been on oral medications for same.

Case 3

Local examination of right arm and right hip gave following findings.

Right arm showing swelling and tenderness around mid-arm with painful range of motion, with wrist drop.

Right lower limb shortened and externally rotated, with swelling and tenderness around the hip joint associated with painful range of motion.

Plain radio-graphs were done and was suggestive of, simple transverse fracture of mid-shaft of right humerus with inter-trochanteric fracture of right femur.

This patient was managed with right total hip arthroplasty and plating for humerus shaft fracture.

All patients were indoor till suture removal. Appropriate physiotherapy were started according to protocol. Assisted mobilization with the help of relatives and assisting devices started. Check dresses done on postoperative day 3 and 7 were found to be healthy and patients were discharged after suture removal found to be healthy.



Figure 8: Post-operative hip fracture in case two with bipolar hemiarthroplasty done.

DISCUSSION

Hip fractures are very serious and costly fractures in elderly with 5% mortality in hospital and 15-20% mortality 1 year postoperatively.⁴ Upper limb fractures like humerus, forearm and wrist consist of one third fractures incidences in old age population.⁴ Concomitant fractures of pelvis and spine in hip fractures do not significantly increase complications, mortality or hospital stay.⁴ But patients with hip fractures having concomitant upper limb fractures have poor outcome due to difficulty in mobilization and rehabilitation after treatment.⁴ Osteoporosis, vitamin D deficiency and kidney diseases have a strong association and negative impact in hip fracture patients.⁴

Patients who survive hip fractures have high risk of permanent limitations in activity and participation, with long term hospitalization in 25%. Only 40% patients regain their prefracture independence levels.⁵

Concomitant hip and upper limb fractures are commonly seen at distal end radius in comparatively healthier patients and at proximal humerus in comparatively frail patients.⁵

Old age, female sex, pressure ulcers, infections, cognitive impairment and neurologic impairment are poor prognostic factors in concomitant hip and upper limb fractures.⁵

Among the concomitant upper limb injuries wrist fractures accounted for 41% whereas proximal humerus fractures accounted for 35%.¹

Wrist fractures are one of the most encountered fractures in orthopedic clinics with hip fractures being the one with highest associated mortality.⁶

When they occur simultaneously, they are technically challenging to treat and rehabilitate the patient.⁶

Though these fractures are more common in women, the mortality is comparatively more in men.⁶

Literature suggest the predominance of wrist fractures in hip fracture patients can be explained as even a minute transmission force from outstretched hand to the osteoporotic hip can lead to a fracture on ipsilateral side.⁷

Some studies have shown walking speed of patient as a single most important indicator for frailty.⁷

Factors like orientation of fall and protective reflexes during fall play an important role in etiology of concomitant hip and upper limb fractures.⁸

It can be attributed to fact that elderly people are more alert mentally and thus have better protective reflexes during a fall resulting in an outstretched hand or turning shoulder first towards ground.⁸

Surgical management of hip fractures is recommended even in elderly as it facilitates early mobilization and functional recovery.¹

Majority of hip fracture patients require assisting devices or equipments for ambulation following their injuries. This gets complicated when there are concomitant upper limb fractures and their mobilization gets delayed.¹

CONCLUSION

Concomitant hip fractures with associated ipsilateral upper limb fractures are quite common in elderly and difficult to treat. Postoperatively mobilization of patient and functional outcome is hampered. Proper counseling by

operating surgeon, physiotherapy and postoperative rehabilitation with the help of relatives and assisting devices provides good outcome. In cases of hip trauma in old age, one should always thoroughly examine and screen for upper limb injuries. So that early appropriate treatment and mobilization can be done with good functional outcome.

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