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Case Report

Neglected bilateral radial head fracture with a rare presentation: A case report

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ABSTRACT

Isolated radial head fractures are rare and comprise about 2% of all fractures around the elbow. Bilateral radial head fractures are even rarer and few cases have been reported. We present a case of bilateral elbow effusion in a 28-year-old male patient. An initial diagnosis of inflammatory arthritis was made but on investigation it turned out to be a case of bilateral radial head fracture. The patient was managed conservatively with 10 days of immobilisation in above elbow slab followed by active elbow range of movement exercises. On follow-up at 6 months, the patient had near normal range of movements without pain or elbow instability.

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Introduction

The elbow joint is a complex joint, in which superior radioulnar joint plays a vital role in the pronation and supination of the forearm. The radial head may be fractured when it collides with the capitellum. This can occur with a pure axial load (e.g. Essex-Lopresti injury), a valgus load, posterolateral rotatory type of load, or as the radial head dislocates posteriorly as part of a posterior Monteggia fracture or posterior olecranon fracture-dislocation.¹ It accounts for about 2% of all fractures around the elbow. But bilateral radial head fractures are very rare and little has been mentioned about this in the literature. The scarcity of literature on bilateral radial head fractures and the unusual mechanism of injury in our case have urged us to report this case.

Case report

A 28-year-old male presented to the out-patient department with complaints of swelling bilateral elbow joints. He gave a history of roadside accident 27 days ago when he was travelling as a pillion rider. The vehicle slipped and he fell backward with both arms outstretched. He struck the ground with shoulder extended, elbow extended, forearm supinated and wrist dorsiflexed. After the accident he consulted a local practitioner for pain in both elbow joints,

where he was prescribed some analgesics. Pain and swelling subsided after taking some rest and analgesics for ten days. Then the patient returned his routine activity. But doing heavy work made the swelling reappear, which troubled the patient and he consulted our out-patient department.

On clinical examination both the elbow joints were swollen, more serious on lateral aspect. Tenderness was present over both radial heads. Thickened synovium was palpated. Supination and pronation of the forearms were mildly restricted bilaterally because of pain. There was no crepitus or neurovascular deficit. The elbow was stable on varus and valgus stress test. Blood investigations to rule out inflammatory arthritis was done, which came out to be normal. But X-rays showed a Mason type I radial head fracture on both sides (Figs. 1 and 2).

The patient was managed conservatively with an above elbow slab for 10 days and oral nonsteroidal anti-inflammatory drugs, followed by elbow mobilisation and physiotherapy. The patient was followed up for 6 months and at present he has near normal range of movements and no other complaints.

Discussion

Bilateral radial head fracture is very rare.^{2,3} The usual mechanism of fracture of radial head is fall on an outstretched hand with the elbow partly flexed and the forearm in supination. As there is a 15 degrees angle between the radial neck and shaft, it is susceptible to fractures anatomically. When the forearm is pronated, the antero-lateral margin of the radial head comes in contact with the capitulum and this makes it susceptible to a shearing type of injury.³

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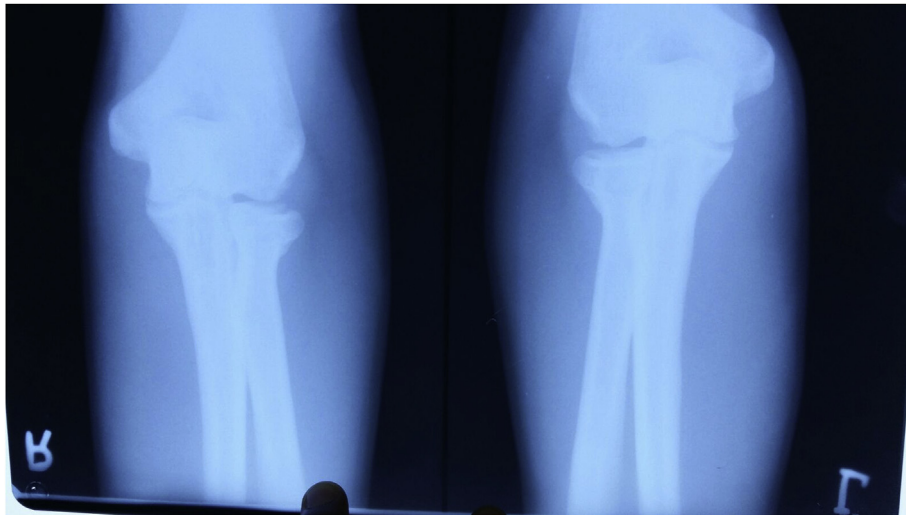


Fig. 1. Anteroposterior X-ray films of bilateral elbow showing bilateral radial head fracture.

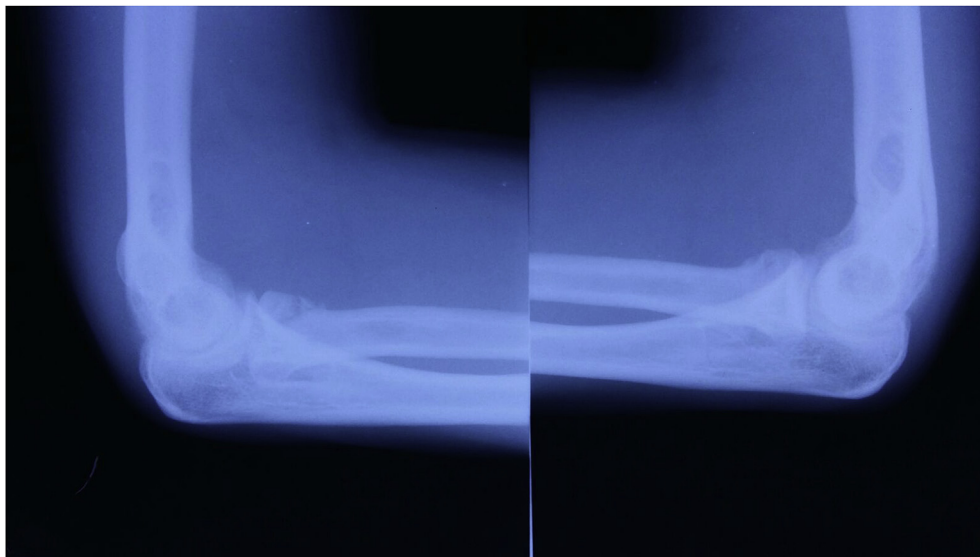


Fig. 2. Lateral X-ray films showing bilateral radial head fracture.

Patients with radial head fracture present with acute pain, swelling and localised tenderness over lateral aspect of elbow. Crepitation over radial head and loss of elbow movements, especially pronation-supination, will be noted. The diagnosis can be made adequately on plane radiograph of elbow in anteroposterior (AP) and lateral views. However, if Essex-Lopresti lesion is suspected, the radiograph should also cover the forearm and wrist. Magnetic resonance imaging (MRI) is also becoming very popular these days, not to miss any concomitant cartilaginous or soft tissue injury which is not visible on plain radiograph. Using MRI, associated injuries can be found in 76%–96% of the patients with radial head fractures.^{4,5} However, most of these injuries need no additional treatment.⁶ van Riet et al⁷ conducted a retrospective study on 333 patients with radial head fractures and found clinically relevant associated injuries in 39% of them. The likelihood of associated injury was found to be strongly correlated to the severity of the radial head fracture.

Mason⁸ has classified radial head fracture into 3 types, i.e. Type I: undisplaced marginal fractures; Type II: displaced marginal

fractures; Type III: comminuted fractures. Morrey⁹ modified Mason's classification to (a) fractures of the radial neck, (b) including a quantitative definition of displacement (a fragment involving 30% or more of the articular surface that is displaced more than 2 mm), and (c) incorporated fracture-dislocations of the elbow. This type 'c' was suggested by Johnston¹⁰ as a Mason Type IV fracture.

The main goals of treatment of radial head fracture include, correction of any hindrance of forearm rotation by the fracture, restoration of elbow and forearm motion by early initiation of an adequate exercise program, elbow stability, limitation of the potential for ulnohumeral and radiocapitellar arthrosis and avoidance of injury-related complications.¹

Holdsworth et al¹¹ conducted a prospective study and concluded that functional recovery was better in younger patients and was inversely related to the severity of the fracture. They showed that a delay in restoration of early active movement leads to delay in the recovery of function.

Carley¹² also suggested that aspiration may benefit the patients with traumatic elbow effusions but the evidence was insufficient to

recommend it as a routine procedure. He suggested that a properly designed prospective controlled trial should be carried out to reach any conclusion.

Our case is a neglected Mason type I radial head fracture. By definition, type I is an undisplaced fracture which requires no reduction, and does not exhibit any mechanical block in pronation and supination. Type I injuries should be treated conservatively with early mobilisation. Our case was neglected as there was no functional deficit after the injury. Pain and swelling subsided after the course of non-steroidal anti-inflammatory drugs. And the patient has returned to his daily work. Recurrence of swelling and persistent pain made him visit us. Synovial thickening and collection present in both the elbows with no other joint involvement was a rare presentation. Painless near normal range of movement was also very unlike with fracture and misguided the investigations towards inflammatory arthritis. Detailed history taking, knowledge about the mechanism of injury and high index of suspicion helped us diagnose the case. Twenty seven days' delay of the injury must have glued the fracture fragment. We managed the case conservatively with immobilisation in above elbow slab for 10 days which decrease the pain and swelling and helped in faster healing of fracture. It was followed by active exercise and physiotherapy. The patient was followed-up for 6 months and presently is asymptomatic with near normal range of movement.

Conclusion

A high index of suspicion, history, clinical examination and radiograph is essential in patients with history of falls on

outstretched hands to not to miss radial head fractures. Early diagnosis, proper management, and appropriate physical rehabilitation lead to complete functional recovery.

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