Bilateral Asymmetrical Radial Head Fracture: An Unusual Case Report

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Citation

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Abstract

Isolated radial head fractures constitute about 5.4% of all fractures and 33% of all elbow fractures, while Bilateral fracture of radial head is an unusual injury. It usually occurs by fall on outstretched hand. We report an unusual case of bilateral asymmetrical radial head fracture mason type2 and type3 on right and left sides respectively, due to a fall on elbows.

INTRODUCTION

Bilateral fractures of radial head are extremely rare injuries, to the best of our knowledge hardly 5-6 cases are reported in literature, 3 case reports are of isolated bilateral symmetric type1 radial head fractures and two with elbow dislocation. We report for the first time in literature a case of bilateral asymmetric radial head fractures mason type2 and type3 on right and left side respectively. The mode of injury in this patient is also unique as he sustained direct injury over elbows by a fall on elbows.

The management of radial head fractures depends on the degree of comminution, displacement, free intra articular fragments, the percentage of articular surface involved and the angulation between the radial neck and shaft of radius.

CASE REPORT

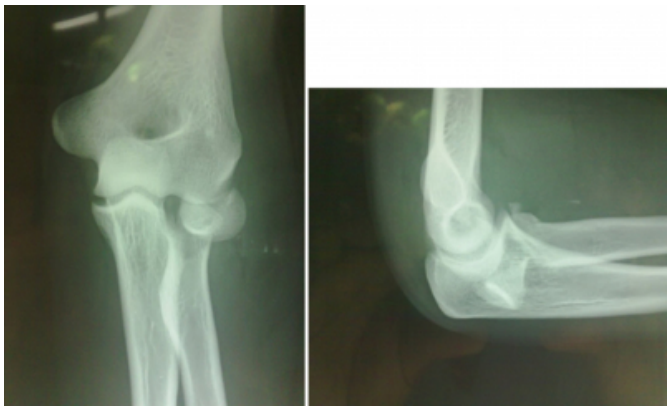
A 18 year right handed male, coolie by occupation came to our emergency department, with pain and swelling in both elbows after a RTA. The bus in which patient was travelling met with an accident and rolled upside down, during which he landed on his elbows directly on the floor of the bus and got his elbows hurt.

On examining vitals were stable ; the chest, head ,abdomen and lower limbs were found to be normal except for few abrasions over lower limbs and head. Both elbows were diffusely swollen extending into proximal forearm. The movements were found to be extremely painful in both elbows. On palpation tenderness was elicited on radial heads, the pronation and supination was limited by pain and flexion , extension was painful as well. Distal neurovascular status was found to be normal on both sides. The patient was ordered to get his upper limbs x rayed.

The x ray revealed bilateral radial head fracture with comminution of entire radial head on left side and hence it was grouped under mason type3 (fig1&2)

Figure 1

Fig1&2: Lat and AP view-Comminution of entire Lt radial head



while on right side displaced marginal fracture was found and was grouped under mason type2 (fig3&4)

Figure 2

Fig3&4: Lat and AP view-displaced marginal fracture of Rt radial head

The patient was given forearm slab for both upper limbs and was shifted to general ward and battery of routine investigations was made. We planned for radial head excision on both sides as one side fracture comminution involved entire radial head and another side it involved more than one fourth of articulating surface.

The patient was given general anesthesia and two team of surgeons decided to operate simultaneously under tourniquet control through postero lateral approach. Radial heads were reached through the Kochers interval (fig5)

Figure 3

Fig5: Kochers interval–Between anconeus and extensor carpi ulnaris

The fractured part of radial head is removed and then assembled on table to confirm whether all fractured pieces were removed completely (fig6)

Figure 4

Fig6: Fractured radial head assembled on table.

The post operative xray showed no remnants of radial head fragments(fig7&8)

Figure 5

Fig7: Post operative left side elbow

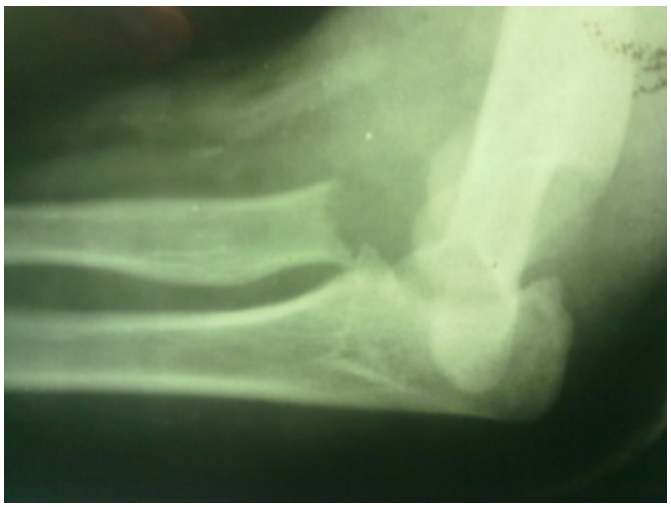


Figure 6

Fig8: Post operative right side elbow

The patient was immobilized for a period of 10 days in forearm slab and after 14 days the stitches were removed and active physiotherapy was started. Initially movement was painful and terminal movements were restricted. After 4weeks of surgery the movements were painless and there was slight restriction of terminal movements. The patient was advised for active exercises and after 6weeks he gained full range of motion and Morrey elbow score was excellent.

DISCUSSION

Radial head fractures constitute about 33% of fractures around elbow(1), while the bilateral radial head fractures are rare injuries(2). Usually the fracture of radial head occurs by fall on outstretched hand , with the force transmitted along the axis of forearm causing compression of the radial head against the capitellum causing fracture of radial head and may cause macroscopic damage to capitellum. Anatomically the radial head is susceptible to fractures because of a 15° angle between the radial neck and shaft. The greater carrying angle in females may explain the higher incidence of this fracture in women.

The routine AP and Lateral radiographs are adequate to diagnose a radial head fracture, internal and external oblique radiographs are required rarely. A special radiocapitellar view increases sensitivity by only 1%(3) and hence not used routinely. Reconstruction CTs are required rarely and are useful in decision making of doubtful cases. Acute pain, local tenderness with associated swelling, and a positive fat pad sign with a fracture line are diagnostic features.

The classification of radial head fractures was given by Mason(4)

- Type I, fissure or marginal fractures without displacement;
- Type II, marginal sector fractures with displacement;
- Type III, comminuted fractures, involving entire head. A fourth group was subsequently added
- Type IV, any radial head fracture with dislocation of the humeroulnar joint.

As fracture of radial head on left side is comminuted with 3 fragments, we decided to go for radial head excision(4). On right side the marginal fracture of radial head involved more than one fourth of its articulating surface and so radial head excision was done(4)

The excision of radial head is recommended by many authors(4,5,6,7) but recently there has been growing interest in fixation of radial head fractures as operative skills and technology improves(8,9,10). But according to our experience we still recommend for a radial head excision for comminuted fractures and displaced marginal fractures involving more than one fourth articulating surface.

The surgical approach for radial head excision which is mostly used is kochers exposure, as it provides greater protection for posterior interosseous nerve but attention must be paid for protection of LCL complex (11). Other interval is Kaplan interval between extensor carpi radialis brevis and the extensor digitorum communis muscle(12).

The patient underwent detailed clinical follow up by us using a detailed elbow evaluation modified from Morrey(1).

The importance of this timely report is that all radial head fractures should be diagnosed promptly and should be treated in a proper manner with early rehabilitation to avoid complications.

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