

# Bilateral Symmetrical Radial Head Fractures: A Case Report

S Godey, V Gowda

## Citation

S Godey, V Gowda. *Bilateral Symmetrical Radial Head Fractures: A Case Report*. The Internet Journal of Orthopedic Surgery. 2006 Volume 4 Number 1.

## Abstract

Radial head and neck fractures are the most common elbow fractures among adults, typically encountered in young to middle-aged individuals (1). The treatment of these fractures depend on the degree of comminution, the percentage of articular surface involved, the presence of loose intra-articular fragments and the angulation between the radial neck and proximal shaft. We report a case of bilateral symmetrical radial head fractures in view of its rarity of presentation and also briefly discuss the management options of Type 1 radial head fractures.

## CASE REPORT

A 24 year old female, a carer by occupation presented with pain in both the elbows after she sustained a fall on an outstretched hand with both the elbows in extension while playing netball. On physical examination she had minimal bruising on the right elbow with tenderness over the radiocapitellar joints on both the sides. There was no restriction to the range of movements. There was no distal neurovascular deficit. AP and lateral radiographs of both the elbows revealed symmetrical undisplaced radial head fractures (fig.1). Patient was given cuff and a collar slings on both sides and analgesics for pain relief with advise to move the elbows out of the slings as much as the pain allows. At 3 week review she had significant pain relief, slings were discarded and patient advised active physiotherapy for elbow ROM. At latest follow-up 4 months after the injury she had no pain in both the elbows. On the right side she had restriction of terminal 5° of extension with full flexion and full ROM of the left elbow (fig.2). She had been carrying out her routine activities and has gone back to her job as a carer.

## Figure 1

Figures 1&2: X-rays showing bilateral symmetrical radial head fractures



**Figure 2**



## DISCUSSION

Fractures of the radial head result from fall on outstretched hand. The force is transmitted along the line of the forearm producing a valgus stress at the elbow. Compression of the radial head against the capitellum commonly results in fractures due to shearing between the vertically aligned trabeculae and may also produce macroscopic damage to the capitellum. Anatomically the radial head is susceptible to fractures because of a 15° angle between the radial neck and shaft. The greater carrying angle of the female elbow may explain the higher incidence of this fracture in women.

Acute pain, local tenderness with associated swelling, and a positive fat pad sign with a fracture line are diagnostic features. The main problem after radial head fracture is failure to gain full extension, probably caused by fibrosis of the anterior capsule of the joint after organisation of haemarthrosis (3) and damage sustained by the capitellum of the humerus at the time of injury (2)

Conventional radiography with AP & Lateral views are adequate for detection of radial head and neck fractures. Internal and external oblique radiographs are required occasionally. A special view the radiocapitellar view has been shown to increase the sensitivity by only 1% (7) and hence is not routinely used. CT with reconstruction images is of helpful in doubtful cases and aid in decision making.

Treatment options are based on the classification of Mason (1) who divided radial head fractures into three groups:

- 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

By definition, type I is an undisplaced fracture, requires no reduction, and does not exhibit any mechanical block to forearm rotation. Immediate pain relief should be achieved to allow initial physical examination and to start active forearm rotation as pain allows. Type I injuries should be treated conservatively as in this case. Joint aspiration of haemarthrosis and injection of an anaesthetic into the joint may be performed to reduce pain. Early motion helps to shape and mould slight incongruities without substantial risk of displacement.

Mason and Shutkin (4) suggested that early mobilisation allows the fragment to find the best functional position in relation to the other joint surfaces. Bakalim (5) showed that displacement of the fragment was not associated with loss of function. Unsworth-White et al concluded that extension splintage was superior to immobilisation in flexion (6). Thompson compared flexion casts with extension casts and found no difference between the 2 groups.

Aspiration of elbows championed by Postlethwait (7) was finally discredited by Gaston who showed that although aspiration may ease initial pain, it does not affect the long term result. Injecting the joint with LA to determine if motion is blocked was first suggested by Quigley (8). Holdsworth et al (9) conducted a prospective control study and concluded that functional recovery was best in younger patients and was closely related to the severity of the fracture. They stated that aspiration of the elbow is a quick, safe, and painless procedure, which greatly reduces discomfort to the patient and allows early return of movement of the elbow, but failed to show any difference in the functional outcome between the aspirated and non aspirated group. Carley (10) suggested that aspiration may benefit patients with traumatic elbow effusions and that the evidence was insufficient to recommend it as a routine procedure.

We conclude that type 1 radial head fractures are to be treated conservatively. In the acute phase analgesia to

control pain and ensure motion is of prime importance. Aspiration of haemarthrosis though gives good pain relief initially does not influence the long term results. Though some patients lack terminal degrees extension it does not interfere with their functional activities.

### **References**

1. Hodge JC. Bilateral Radial Head and Neck Fractures. *The Journal of Emergency Medicine*. 1999; 17:877-81
2. Mason ML. Some Observations of Fractures of the Head of Radius with a Review of One Hundred Cases. *British Journal of Surgery* 1954; 42:123-132
3. Pinder IM. Fracture of the Head of the radius in Adults (Abstract). *J. Bone & Joint Surgery*. 1945; 67:77-80.
4. Mason JA, Shutkin NM. Immediate active mobilisation in the treatment of fractures of the head and neck of the radius with a review of hundred cases. *Surg. Gynaecol. Obstet.* 1943; 76:731-7
5. Bakalim G. Fractures of Radial Head and Their Treatment. *Acta Orthop. Scand.* 1970; 41:320-31.
6. Unsworth-White J, Koka R, Churchill M, et al. The non-operative management of radial head fractures. A Randomised trial of three treatments. *Injury*. 1994; 25:165-7.
7. Postlethwait RW. Modified Treatment for Fracture of the Head of Radius. *Am J. Surg.* 1945; 67:77-80.
8. Quigley TB. Aspiration of the Elbow Joint in the Treatment of Fractures of the Head of the Radius. *N. Engl. J. Med.* 1949; 240:915-6.
9. Holdsworth BJ, Clement DA, Rothwell PNR. Fractures of the Radial Head-The Benefit of Aspiration: A Prospective Controlled Trial. *Injury*. 1987; 18:44-7.
10. Carley S. The role of therapeutic needle aspiration in radial head fractures. *J. Accid Emerg Med.* 1999. 16(4):282.

**Author Information**

**Shashi Kanth Godey, M.S (Ortho) MRCSEd, MRCSI**

Department of Orthopaedics, New Cross Hospital

**Veda Prakash Gowda, M.S (Ortho), DNB (Ortho), MRCSEd**

Department of Orthopaedics, New Cross Hospital