

Medial Epicondyle Fracture With Associated Elbow Dislocation In An Adolescent

M Subramaniam, P Hussin

Citation

M Subramaniam, P Hussin. *Medial Epicondyle Fracture With Associated Elbow Dislocation In An Adolescent*. The Internet Journal of Orthopedic Surgery. 2007 Volume 9 Number 2.

Abstract

Injuries to the medial aspect of the distal humerus in young children can range from an avulsion fracture of the medial epicondyle to a much more serious Salter-Harris type IV fracture of the medial condyle, which crosses the physal plate. The distinction between these types of fractures is key to the selection of appropriate treatment. This diagnosis may be difficult to ascertain due to the limitations of radiographic visualization of cartilaginous fractures observed with the developing anatomy in this area. Inadequate reduction of the physal growth plate and the joint surface cartilage in a medial condyle fracture can lead to serious complications.

CASE REPORT

This is a case of a 16 year old adolescent boy who had a fall at home. The boy was apparently standing up on a stool trying to change bulb when the stool moved and he fell down. He claims had a fall with his right upper limb outstretched while trying to block the fall and as he hit the floor, his elbow was put in valgus stress.

Immediately after the fall he was not able to move his right elbow anymore and associated with swelling, severe pain and deformity.

He has no significant past medical or surgical history.

Examination revealed a swollen right elbow kept in flexion. Severe tenderness was noted on palpation over the medial epicondyle and clinically the elbow was dislocated posteriorly. There were no neurovascular deficits.

Plain radiographs of his right elbow showed posterior dislocation of right elbow with a piece of bone trapped within the joint. (Figure 1)

TREATMENT

Closed manual reduction was done immediately under sedation and was immobilized with above elbow pop with elbow in flexion. He was later admitted to the ward with limb elevation and regular analgesics were given. Repeat X-ray showed that the joint was reduced with the bone piece successfully removed from the joint. (Figure 2)

Daily neurovascular assessment was done and showed no deficits.

Open reduction of the fracture site with cannulated screw fixation and K wiring of the medial epicondyle of right elbow was done on the 30/8/07. The K wire was buried under the skin.

Prophylactic antibiotic was given pre and post operatively

His elbow was protected with above elbow back slab post operatively and he was later discharged from the ward on the post operative day 2.

FOLLOW UP

He was seen back in clinic on the 20/9/2007 (3 weeks post operatively).

Check X-ray was done and showed a well reduced fracture with minimal callus formation. The K wire was noted to be piercing out of the skin and it was removed. However there were no signs of wound infection. The back slab was removed and he was started on physiotherapy for elbow range of motion.

He was seen again in clinic 4 months later with full range of movement of his right elbow. X ray showed united fracture.

Figure 1

Figure 1: Plain X ray showing posterior dislocation of elbow joint with an intra articular piece of bone



Figure 2

Figure 2: X ray taken post closed reduction and above elbow slab application



Figure 3

Figure 3: Post operative Xray showing a screw and a K wire used to fix the medial epicondyle piece



DISCUSSION

The age of the patient, the extent of initial injury and displacement, and the delay in initial treatment play important roles in the clinical outcome. For medial epicondylar fractures, nonoperative management of fractures displaced up to 15 mm does not appear to be associated with

functional deficit unless entrapment of the epicondylar fragment in the joint is present. Entrapment of the epicondylar fragment in the joint can block motion and the fragment should be reduced. Closed reduction and cast immobilization is adequate for undisplaced, minimally displaced, or even displaced up to 15 mm fractures of medial epicondyle. In many studies, including more recent long-term follow-up reports, patients treated nonsurgically had results similar to those of patients treated surgically, even for fracture fragments displaced as much as 15 mm. A radiographic nonunion of the medial epicondylar fracture fragment associated with nonsurgical treatment was not found to have any functional impairment in at least one long-term study.

The only absolute indications for operative management of closed medial epicondylar fractures are the incarceration of the medial epicondylar fragment within the joint and an open fracture.

An incarcerated fragment within the joint must be removed. Several closed means of reduction can be used, and the success rate with these methods approaches 40%.

One such maneuver (Roberts manipulative technique) is performed under sedation and involves placing a valgus stress on the elbow while supinating the forearm and simultaneously dorsiflexing the wrist and fingers to place the forearm flexor muscles on stretch. If employed, this maneuver is usually performed in the operating room with the patient under general anesthesia.

Joint distention techniques also have been described to help facilitate the closed reduction of the incarcerated medial epicondyle fracture.

Lately a new method of removing the incarcerated bone fragment has been advocated. This method is via the use of nerve stimulator and with the elbow kept in extension, the flexor muscle group is stimulated producing brief tetanic contraction of the common flexors.⁽³⁾

References

1. Wheeler's Textbook of Orthopaedics http://www.wheeleronline.com/ortho/complex_elbow_dislocations.
2. Rockwood CA, Jr, Beaty JH, Wilkins KE. Fractures in children, 4th edition. Lippincott Raven Philadelphia-New York. 3: 844.
3. S. Sinha *, M. Naik, R.K. Rai, R. Rifai, A.C. Campbell A new technique for treatment of medial epicondyle fracture with displacement into the elbow joint Injury, Int. J. Care Injured 33 (2002) 269-270

Author Information

Mahendran Subramaniam

Department of Orthopedics, University Malaya Medical Center

Paisal Hussin

Department of Orthopedics, University Malaya Medical Center