

Treatment of neglected elbow dislocations with combination of speed V-Y muscleplasty and intra-articular injection of hydrocorticosone

Bansal P, Lal H, Khare R, Mittal D

Department of Orthopaedics, Ram Manohar Lohia Hospital, Delhi University, New Delhi, India

Abstract

Neglected dislocations of the elbow are not uncommon in developing countries. We report case series of 3 cases of neglected dislocations of elbow. All the three cases were treated by combination of Speeds procedure and intraarticular injection of 25mg of hydrocorticosone acetate in 5ml of distilled water. Mean time from injury was 5 months and mean follow-up was 10 months. According to Mayo Elbow Performance Index, 2 outcomes were excellent and 1 outcome was good.

Key words: Dislocations, elbow, neglected.

Neglected elbow dislocation is defined as dislocation which left unreduced for more than 3 weeks¹⁻⁴. In developing countries, neglected dislocations of elbow are a quite common². Treatment of neglected elbow dislocation is a challenging problem in the developing countries¹. In developing countries most patients initially go to local bonesetters for massage and reduction. Treatment of neglected elbow dislocation depends upon duration of injury. According to some authors^{5,6} benefit of open reduction is limited to dislocations of less than 3 months while according to some authors^{1,3} open reduction gives good results in dislocations of even 2 years duration. The purpose of our study was to evaluate the role of injection hydrocorticosone in combination with open reduction, as there is no universal agreement between authors regarding treatment of dislocations of more than 3 months.

Case report

Case 1: A twenty year old male presented to us with stiff elbow, six months after history of trauma. Patient was initially treated outside by local bonesetter, who splinted the elbow in full extension. Radiographs of patient showed posterior elbow dislocation without any fracture (fig.1). On Physical examination, three point bony relationship between olecranon tip and medial and lateral epicondyles was disrupted. The distal articular surface of humerus could be palpated anteriorly at elbow and the olecranon tip was prominent posteriorly with tenting of the triceps tendon. There was no distal neurological deficit. Elbow joint was tender and fixed in 20 degree flexion. Patient did not have history of long illness.

Treatment: Patient was treated with combination of open reduction by speeds procedure⁷ and intraarticular injection of 25mg of hydrocorticosone acetate in 5ml of distilled water under general anaesthesia. Speed V-Y muscleplasty was done and fibrous tissue was removed. Concentric joint reduction was achieved and fixed with kirschner wire in 90 degree elbow flexion(fig.2). Wound was stitched and splintage was given. Wire was removed after ten days and active movement was initiated and, when not in physiotherapy, the arm was supported with sling. Patient was followed-up for 10 months and evaluated with Mayo Elbow Performance Index⁸. At the end of follow up result was excellent.

Case 2 and case 3 also had the same histories and we did the same treatment which proved well. Case 2 also had the fracture of radial neck (fig.3) and radial head was also removed (fig.4). According to Mayo Elbow Performance Index, result of case 1 was excellent and of case 2 was good.

Correspondence

Dr. Pankaj Bansal
Senior Resident, Orthopaedics
Ram Manohar Lohia Hospital
New Delhi-110001, India
E-mail: bansalpankaj@gmail.com



Fig 1: Preoperative radiograph of case 1 showing posterior dislocation of elbow.



Fig 3: Preoperative radiograph of case 2 showing posterior dislocation of elbow with radial neck fracture.



Fig 2: Postoperative radiograph of case 1. Radiographs showing posterior dislocation of elbow which was treated by with combination of Speed V-Y muscleplasty and intra-articular injection of hydrocortisone. Concentric reduction was achieved and fixed with kirschner wire in 90 degree elbow flexion.



Fig 4: postoperative radiograph of case 2. Radiographs showing posterior dislocation of elbow which was treated by with combination of Speed V-Y muscleplasty and intra-articular injection of hydrocortisone with removal of radial head. Concentric reduction was achieved and fixed with kirschner wire in 90 degree elbow flexion.

Discussion

In developing countries neglected dislocations of elbow is a common problem. Neglected dislocation of elbow is the dislocation which has been left untreated for more than three weeks. In our series all the patients were initially treated by local bonesetters by massage and immobilization in elbow extension. Neglected elbow dislocation causes stiff elbow and weakness in hand. The operative technique in our series was combination of Speed V-Y muscleplasty and injection hydrocortisone. We used and injected Hydrocortisone for the following reasons and believe that it has a role in our good results:

1. Our experience with the use of intraarticular steroid injection in frozen shoulder as a complement to manipulation was encouraging. It prevented the formation of future fibrous adhesions, and augmented the results obtained by manipulation therapy. It also helps in post treatment physiotherapy by suppressing the inflammatory pain mediators.
2. Its use in release of trigger fingers which is a stenosing fibrositis, whereby in addition to suppressing inflammation, the effects of local corticosteroid injections could be mediated through their effect on the connective tissue or

adhesions between the tendon and the surrounding peritendinous tissues by inhibiting the production of collagen, other extracellular matrix molecules, and granulation tissue in these sites⁹. This action we believed prevented development of future adhesion and weaken the effect of any constricting adhesive capsulitis, if it recurs in future.

3. Intraarticular steroid in small dose use also has chondroprotective effect¹⁰; it helps in stabilising the already precarious articular cartilage in a chronically dislocated joints. Both in inflammatory and in degenerative conditions, the TNF- /IL-1-driven cytokine cascades overrule the anabolic repair-promoting growth factor pathways. However, when TNF-blocking biologicals have been administered in the immunologically mediated inflammatory arthritis, tissue repair has been demonstrated unmistakably. Reappearance of a joint space that had disappeared before has been documented in inflammatory arthritis. Corticosteroids, have been shown to repress IL-1 and they apparently down-modulated downstream IL-1 features, e.g. collagenase, proteoglycanase and MMP activities, the expression of iNOS and the increased release of NO, and the discharge of PGE₂, IL-6 and IL-8.

All these factors prompted us to use it as an adjuvant to surgical procedure in our study.

Speed's procedure was done under general anaesthesia. Patients were positioned laterally with elbow flexed at 90 degree. Incision was given over posteriorolateral aspect of the elbow, beginning in the midline 10 cm. proximal to the olecranon. Ulnar nerve was identified and released. An inverted V flap of triceps aponeurosis was made. The fibrous and osteoid tissues were removed and reduction was done with gentle traction. After reduction, to increase the stability, olecranon was fixed to the humerus with kirschner wire at 90 degree of elbow flexion. Injection hydrocortisone, because of anti-inflammatory property causes less formation of new fibrous adhesions. We achieved concentric reduction in all cases by removing fibrous tissue from joint. Joint was stable in most cases as anterior bundle was intact in most cases. This might be the result of elbow immobilization by a traditional bone setter in a splint for more than 3 months in all cases which might have helped the acute rupture of ulnar collateral ligament, if present in healing. This was a fortunate for the patient. Hinge external fixator is good alternative of open reduction¹¹, but ours is developing country and maximum patient can not afford it. After three weeks of trauma, soft tissue contractures develops, which causes reduction by traction impossible. Fowles et al¹², in their study found that neglected elbow dislocation

of duration of 2 months might give good results with conservative therapy. According to Watson-jones¹³ treatment options in elbow dislocations of greater than 8 weeks is excision arthroplasty. Excision arthroplasty causes good functional range of motion, but also causes elbow instability. In our series all patients were manual workers and they requires stable elbow, so we didn't go for arthroplasty. Many authors found that good functional range of motion can be achieved in old neglected elbow dislocations with open reduction.

According to many authors final outcome of open reduction of neglected dislocation depends upon duration of injury. Some authors are in the favor of open reduction for dislocations of 3 months duration while others are in the favor of open reduction for dislocations of more than 3 months duration. Because of this reason we use the combination of Speed V-Y muscleplasty and intra-articular injection of hydrocortisone. From results of our small series, we agree with Naidoo¹ and Mehta et al³, who found that useful range of motion can be achieved in elbow dislocations of greater than 3 months with open reduction. Usually in a dislocation of more than six months duration articular cartilage degenerates, but in our case the articular cartilage was healthy looking and elbow being a nonweight bearing joint it was worthwhile to go with open reduction rather than arthroplasty. The results were good to recommend open reduction in old dislocation in young patients with healthy looking articular cartilage, though our series is small. To conclude, open reduction with V-Y muscleplasty and intra-articular hydrocortisone injection followed by supervised physiotherapy achieved useful functional range of motion in elbow dislocations of more than 3 months.

References

1. Naidoo KS. Unreduced posterior dislocations of the elbow. *J Bone Joint Surg Br.*1982;64:603-6.
2. Freeman III BL. Old unreduced dislocations. In: Crenshaw AH, editor. *Campbells operative orthopaedics*, 9th ed. St. Louis: Mosby;1998. p.2673-4.
3. Mehta S, Sud A, Tiwari A, Kapoor SK. Open reduction for late presenting posterior dislocation of elbow. *J Orthop Surg(Hong-Kong)*. 2007;15:15-21.
4. Elzohairy MM. Neglected posterior dislocation of the elbow. *Injury*. 2009;40:197-200.
5. Krishnamoorthy S, Bose K, Wong KP. Treatment of old unreduced dislocation of the elbow. *Injury*.1976;8:39-42.
6. Billett DM. Unreduced posterior dislocation of elbow. *J Trauma*.1979;19:1868.

7. Speed JS. An operation for unreduced posterior dislocations of the elbow. *Southern Med. J.*1925;18:193-8.
8. Morrey BF, Adams RA. Semiconstrained arthroplasty for the treatment of rheumatoid arthritis of elbow. *J Bone Joint Surg Am.*1992;74:479-90.
9. Paavola M, Kannus P, Jarvinen TA, et al: Treatment of tendon disorders: Is there a role for corticosteroid injection? *Foot Ankle Clin.* 2002;7:501-13.
10. G. Verbruggen. Chondroprotective drugs in degenerative joint diseases. *Rheumatology.* 2006; 45(2):129-38.
11. Jupiter JB, Ring D. Treatment of unreduced elbow dislocations with hinge external fixation. *J Bone Joint Surg.*2002;84A:1630-5.
12. Fowles JV, Kassab MT, Douik M, Said K. Untreated posterior dislocation of the elbow in children. *J Bone Joint Surg Am.*1984;66:921-6.
13. Wilson JN, editor. *Watson-Jones fractures and joint injuries.* Volume 2. 5th edition. UK: Churchill Livingstone;1982:583-649.