ECRONICON OPEN ACCESS

EC ORTHOPAEDICS
Research Article

Open Reduction of Neglected Elbow Dislocations Using a Bilateral Approach

V A Mittal*

Orthopaedic Surgeon, India

***Corresponding Author:** V A Mittal, Orthopaedic Surgeon, India.

Received: May 27, 2019; **Published:** June 27, 2019

Abstract

19 cases of old dislocated elbows, until 18 months of dislocation, were reduced by open reduction using a bilateral approach. The operative technique and post-operative care are elaborated. The results were good to excellent in 15 of them. The pros and cons of other approaches to the problem are discussed. A method for selection of cases in the future, using a biopsy of the articular cartilage, is suggested.

Keywords: *Old Dislocated Elbows Till 18 Months; Open Reduction; Bilateral Approach*

Introduction

Open reduction for old dislocated elbows was being carried out at the Orthopaedic unit I was working in at a leading teaching hospital in Bombay, India. However, the standard Orthopaedic textbooks did not suggest this mode of treatment for such elbows beyond 8 weeks of dislocation. The objective of this paper is to show that open reduction can be carried out till at least 18 months following dislocation with good results.

Methods

Cases included were those of dislocations ranging between 3 weeks to 18 months.

Any hot joint (swollen, warm, tender) was immobilized for 2 - 3 weeks till it cooled down.

Under inflated pneumatic tourniquet, a bilateral approach is used. Each incision is about 3 - 4 inches proximal to the joint and about 3 inches distal to it. The medial incision is made first. The ulnar nerve is fully mobilized, the common flexor origin severed close to the bone. The joint is then exposed on the lateral side. Extraperiosteal dissection is carried out in children and subperiosteal in adults. All adhesions around the bones and the capsule are cut close to the bone. The humerus is brought out through the medial incision, the radius and ulna through the lateral. Fibrous tissue usually covering the articular ends is gently peeled off revealing normal cartilage. The olecranon and coronoid fossae are cleared of fibro-fatty tissue covering them by making maximum use of a sharp knife and minimum of a nibbler. Any myositis masses are excised. Fibrous tissue is excised around the radial head, tips of the olecranon and coronoid processes, under the Brachialis and anterior to the Triceps. If the Triceps is badly contracted, multiple fish-tail tenotomies are made. The joint is then reduced and flexed to 90 degrees. The ulna is fixed to the humerus with a K-wire. The ulna nerve is transposed anteriorly.

Negative suction is applied for 48 hours. The elbow is kept in a cast for 15 days after which the cast, K-wire and sutures are removed. The limb is then supported in a triangular sling and gradual physiotherapy started with active exercises only. When the oedema and pain decrease, a cuff and collar is applied in maximum flexion and active and assisted active exercises continued.

Results

19 patients; 15 males, 4 females (2 children).

Age range 10 - 59 years, average of 30.6 years.

14 left and 5 right sided elbows.

Duration of dislocation 1 - 18 months, average of 5.6 months.

History of massage in all but one (pre-hospital treatment). Pre-op. myositis in 18 cases (1 required a V-Y plasty of the Triceps), fracture of the Capitulum in 1 case.

Pre-op: Flexion-extension range 0 - 30 degrees (average = 10.3 deg.), pronation full in all, supination full in all except 2 cases with supination of 10 and zero degrees.

Post-op: Flexion-extension range 60 - 130 degrees (average = 87.4 deg.), pronation remained full in all, supination remained full in all and was 40 and 50 degrees respectively in the 2 cases above with restriction.

Complications were re-dislocation in 1 case at 15 days (closed reduction and K-wire fixation done again), posterior interosseous nerve palsy in 1 case (recovered on its own).

Prospective outcome

Range of motion (functional arc 60 - 120 degrees).

Fair (short of functional arc) in 4 cases.

Good (beyond functional arc, arc of 20 to 120 degrees) in 11 cases.

Excellent (arc of 10-full flexion) in 4 cases.

Medio-Lateral instability-Nil as tested clinically by attempting to move the elbow medially and laterally.

Pain-absent after the first 3 - 6 months of mobilization.

Functional recovery-Most of the male patients returned to their heavy labour job within 6 months.

Long term results---Could not be determined. These patients were from the mofussil areas and did not return for follow up though advised to do so. Only 2 returned after 2 and 2.5 years. The results had not changed from the initial improvement.

Discussion

Campbell's Operative Orthopaedics states that for an adult with an unreduced dislocation of the elbow more than 8 weeks old, not only an open reduction but an arthroplasty as well should be performed at the same time because after so many weeks function is rarely satisfactory otherwise [1]. Watson Jones' [2] Fractures and Joint Injuries mentions that open reduction is a difficult procedure and should be used only in the treatment of a late dislocation in the growing child where the presence of open epiphyses prevent an arthroplasty being performed, and that it has no place in the management of late dislocations in the adult. It further promotes arthroplasty mentioning

this to be the best treatment usually, and arthrodesis in those who must pursue arduous labour. However, excision arthroplasty leads to pain, weakness, and instability. Arthrodesis gives a fixed joint. It would also have to be delayed in children till bone growth is complete.

Use of joint replacement may be postulated as another choice but nobody can deny the advantage of preserving the stock. This option is also not easily available in most countries. Besides, one would have to wait in children and adolescents till bone growth halts before putting in a prosthesis. Salvage of patients with failure of prosthesis such as loosening is difficult to solve leaving behind a grossly unstable elbow on removal of the prosthesis.

Bansal., *et al.* [3] report the use of hydrocortisone in addition to Speed's approach with excellent and good results. However, their series is of only 3 cases with a mean time of 5 months of dislocation. No comparison can thus be made. However, hydrocortisone usage seems to be on sound footing.

The technique of Open Reduction described in Campbell's Operative Orthopaedics employs a posterolateral approach [1] with inadequate exposure. Here, bilateral exposure as popularized by Bhattacharya [4,5] and used successfully by Agarwal [6], Shahane, Pradhan [7], is used with its consequent advantage of extensive exposure of the joint.

A case of 2 years' duration (not reported here) was purposely operated upon to study the articular cartilage and the result of open reduction. The cartilage was completely degenerated, and the joint ended as a stiff one requiring secondary excision arthroplasty.

Going forward, a biopsy of the articular surface is recommended (this was done in the latter cases) especially in cases with more than 18 months of dislocation since as a general rule the results are good for elbows dislocated less than 18 months. If there is no adherent chondrofibrosis or extensive cartilage exfoliation with necrobiotic fibrillation, the results are likely to be good even beyond 18 months of dislocation. Vice-versa, if a case shows these changes early, it is recommended to proceed to an alternative form of treatment [8,9].

Conclusion

A very useful painless range of movement can be achieved by the procedure described up to a duration of 18 months of elbow dislocation, when the articular cartilage is still healthy.

Acknowledgement

Pradhan C G, Assistant Professor of Orthopaedics at KEM Hospital, Mumbai, India, under whom I was a Resident Medical Officer and from whom I learnt this technique.

Bibliography

1. Campbell's Operative Orthopaedics (5th and 7th edition) "Old dislocated elbow technique of open reduction" (Speed J S) 444-446 and 2169. "Elbow surgical approaches" 119. "Florid ossification, myositis ossificans" 1366.
2. Watson-Jones. "Dislocation of the elbow joint. Treatment of old unreduced dislocations" (5th edition) 649. "Fracture dislocation of the elbow" 653.
3. Bansal P., *et al*. "Treatment of neglected elbow dislocations with combination of Speed V-Y muscleplasty and intra-articular injection of hydrocortisone". *Kathmandu University Medical Journal* 8.29 (2010): 91-94.
4. Bhattacharya S. "Arthrolysis: A new approach to surgery of post-traumatic stiff elbow". *Journal of Bone and Joint Surgery* 56B (1974): 567.
5. Bhattacharya S. "A new approach to the surgery of post-traumatic stiff elbow". Annual conference of the Surgeons of India (1961).
6. Agarwal N D. "Surgery of post traumatic stiff elbow by bilateral approach". *Indian Journal of Surgery* (1973): 59-64.
7. Pradhan CG. "Old unreduced dislocation of the elbow joint with or without myositis ossificans". All India Orthopaedic Conference (1973).

8. Mittal VA. "Open reduction for old unreduced dislocation of the elbow". Thesis University of Bombay (1978): 1-30.

9. Mittal VA. "Open reduction for old unreduced dislocation of the elbow". *Acta Orthopaedica Scandinavica* (1990).

Volume 10 Issue 7 July 2019