

# NEW MANAGEMENT IN POST TRAUMATIC STIFFNESS OF THE ELBOW AND OLD UNREDUCED DISLOCATION OF THE ELBOW JOINT

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Stiffness of the elbow joint is a great problem in India because of the high incidence of neglected fractures around the elbow and old unreduced dislocations. Stiffness even in a good functional position is not usually accepted by the patients, especially women as they would like to have mobility even at the expense of some stability of the elbow. It is a problem because the usual procedures e.g. manipulation under anaesthesia, capsulotomy, sham reduction and arthroplasty frequently end up with an unsatisfactory result if not followed by proper physiotherapy, which is not possible for a sufficient length of time even in the large centres in India. Given all the facilities it still remains a problem because it is difficult to regain mobility of the elbow joint without sacrificing stability considerably.

A follow up study has been made on 25 patients operated for stiffness of the elbow from 1957 to April 1963.

These consist of:

(a) Fractures around or involving the elbow	... ..	16 cases
(b) Old unreduced dislocations or fracture — dislocations of the elbow	... ..	6 cases
(c) Boy Ankylosis following burns	... ..	2 cases
(d) Post-Variolar arthritis	... ..	1 case
	—————	
	Total	25 cases

## OPERATION

A lateral Kocher's approach and a medial incision about 3" in length along the medial epicondyle is made to expose the joint. Thickened contracted capsule and bone blocks are removed. In a dislocated elbow, the head of the radius might need to be excised to approach the lower end of the humerus, which is brought out through the lateral wound, and the brachialis and triceps are stripped off upwards from the humerus.

After mobilisation the lower end of the humerus is replaced or the dislocated joint reduced by manipulation. In old dislocations anterior transposition of the ulnar nerve is performed as a routine procedure. The common flexors and extensors are re-attached by silk or thick chromic catgut. 25 mg. of Hydrocortisone Acetate in 5 c.c. of distilled water is injected into the joint.

The limb is immobilised in a cast with the elbow in extension when the stiffness is in flexion, and in 90° flexion when the stiffness is in extension. In old unreduced dislocations following the reduction a posterior cast should be applied with the elbow at a right angle or in acute flexion, otherwise there is a possibility of redislocation inside the cast.

*Post Operative Management:* (1) 25 mg. Hydrocortisone Acetate with 2-4 c.c. of 2% Lignocaine is injected into the joint weekly intervals for 3 - 4 weeks.

(2) The cast is discarded in 4-5 days and active movements started with a small weight of about ½ lb. in the hand to develop grip and the tone of the muscles.

(3) In dislocations, after 5-6 days, instead of discarding the immobilisation completely, a posterior angular splint is applied for 2-3 weeks keeping the forearm free for flexion only, while preventing extension beyond 90°. This is to prevent redislocation.

## DISCUSSION

1. This method of restoring movement in a stiff elbow is based on a thorough mobilisation of the joint after releasing or removing all contracted capsules, fibrous adhesions, boneblocks and myositic bones. The articular surface, no matter how bad it looks is left undisturbed. Grossly displaced fractured fragments giving rise to obstruction are removed. Joint alignment is restored to as close to normal as possible. The best results were obtained in

those cases where a full range of movement could be obtained during the operation.

II. The other important factor is the injection of Hydrocortisone Acetate into the joint. This by virtue of its anti-inflammatory activity prevents the formation of fibrous adhesions and thus helps in preventing post-operative stiffness.

III. Active movement should be started as early as possible, except in old unreduced dislocations where guarded movement is advocated.

IV. The patient should co-operate in active exercises with a small weight (1 lb.) in the hand and the surgeon should see to it that it is being religiously done.

V. Elbows bent at less than a right angle are very difficult to correct. With all the precautions to prevent stretching of the nerves, three patients developed ulnar or radial palsy. Though two of them regained power in 3-4 weeks, one, who developed ischaemic contracture and paralysis of forearm and hand muscles, did not.

VI. Infection of the wound definitely hinders movement. Hydrocortisone is not injected into an infected joint. Brachialis muscle contracture should also be dealt with in the same sitting.

#### ASSESSMENT OF RESULT

1. EXCELLENT — Range of movement full. Joint fully stable. No pain. Can lift heavy weight and do his normal work.
2. GOOD — Range of movement 80° or over. Joint fairly stable. No pain. Can lift fair amount of weight and do normal work.
3. FAIR — Range of movement 30° or over or good range movement with instability. Very little pain. Can do some work with the limb.
4. FAILURE — Range of movement less than 30°.

#### RESULTS

Total number of patients operated — 25

1. EXCELLENT — 8 i.e. 32% (Particularly dislocations)
2. GOOD — 11 i.e. 44%.
3. FAIR — 4 i.e. 16% (Some cases of capsular contracture)
4. FAILURE — 2 i.e. 8% (Volkman's contracture)

#### ACKNOWLEDGEMENTS

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#### ILLUSTRATIVE CASES

- (1) C.N. 32 years. Female. Stiffness following malunited supracondylar fracture right humerus three years previously.

Fig. 1 : X-ray before operation (Lat. view).

Fig. 2 : X-ray before operation (A.P. view).

Fig. 3 : Range of movement before operation.

Fig. 4 : Range of movement 8 months after operation.

- (2) J. 19 years. Male. Bony ankylosis right elbow following burns 2½ years ago.

Fig. 5 : X-ray both elbows before operation.

Fig. 6 : X-ray both elbows after operation.

Fig. 7 : Range of movement right elbow 6 months after operation.

- (3) N.K.D. 45 years male. Stiffness four months duration following a smashed elbow due to a fall.

Fig. 8 : X-ray before operation.

Fig. 9 : Range of movement before operation.

Fig. 10 : Range of movement 11 months after operation.

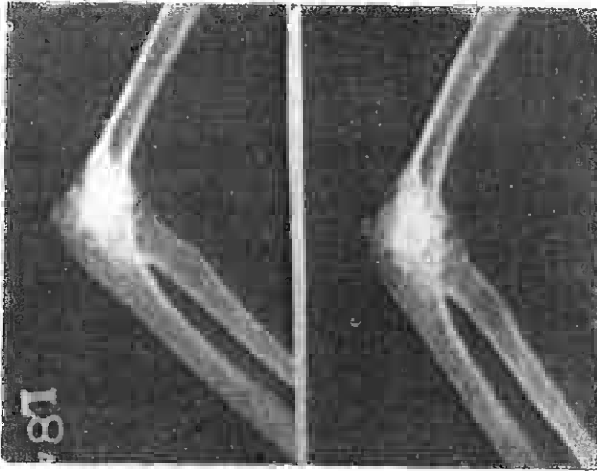


Fig. 1.

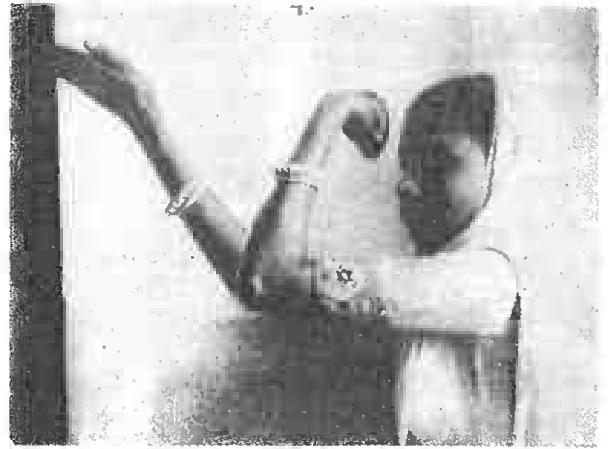


Fig. 4.



Fig. 2.

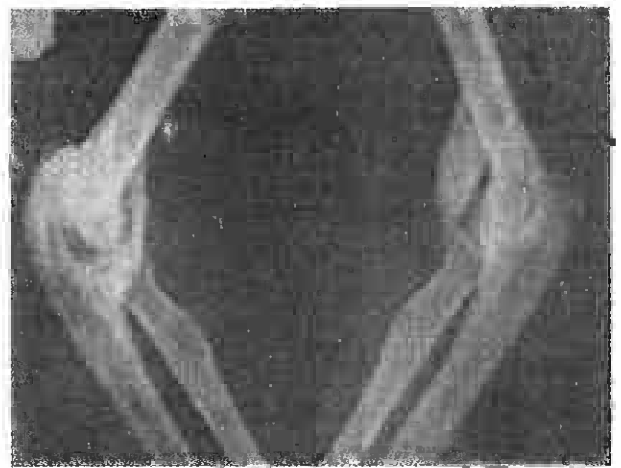


Fig. 5.



Fig. 3.



Fig. 6.



Fig. 7.



Fig. 8.

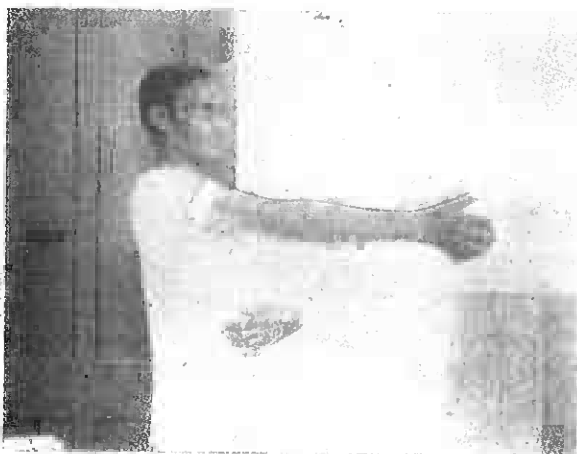


Fig. 9.



Fig. 10.

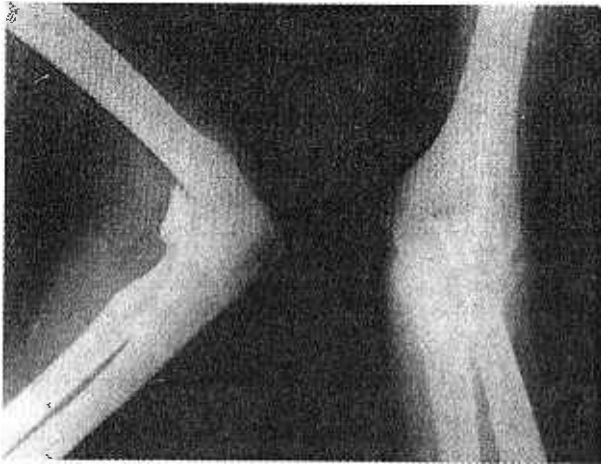


Fig. 11.



Fig. 13.



Fig. 12.



Fig. 14.

(4) P.M. 23 years. Male. Stiffness with myositis ossificans following reduction of a dislocation of the elbow 1 year ago.

Fig. 11 : X-ray before operation.

Fig. 13 : Range of movement before operation.

Fig. 12 : X-ray after operation.

Fig. 14 : Range of movement one year after operation.