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## Post-operative rehabilitation of fracture of the distal end of the humerus: A case study

Sandesh Rao

[empsandy@gmail.com](mailto:empsandy@gmail.com)

Padmashree Institute of Physiotherapy,  
Bangalore, Karnataka

Kangkana Goswami

[goswamikangkana18@gmail.com](mailto:goswamikangkana18@gmail.com)

Padmashree Institute of Physiotherapy,  
Bangalore, Karnataka

Subarna Rabha

[rabhasubarna222@gmail.com](mailto:rabhasubarna222@gmail.com)

Padmashree Institute of Physiotherapy,  
Bangalore, Karnataka

Diker Dev Joshi

[joshidiker@gmail.com](mailto:joshidiker@gmail.com)

Padmashree Institute of Physiotherapy,  
Bangalore, Karnataka

### ABSTRACT

**Introduction:** Intra-articular fractures of the distal humerus constitute 0.5%–7% of all fractures and 30% of elbow fractures. Over 25% of such fractures develop significant complications during treatment and a few of them may need further surgery. Intra-articular fractures of the distal humerus can be treated by open reduction and internal fixation (ORIF). **Methodology:** This case study was conducted on Mr Rangaswamy during the first week of March 2021 at ESIC hospital. The patient was treated with gentle range of motion mobilization for elbow flexion, extension to the patient's pain tolerance level. He was also given wrist and hand ROM mobilization. **Conclusion:** During the 6 days of Physiotherapy sessions, we had with the patient, we both could see the improvement from day 1 until our last session together. He improved greatly during the course of treatment. The improvement came after joint mobilizations, functional exercises and the patient's positive attitude and the willingness to get back to normalcy.

**Keywords—** Intra-articular fracture, open reduction internal fixation, mobilization, case report.

### 1. INTRODUCTION

A 65-year-old male patient named Rangaswamy was a security guard by profession met with an accident while riding his bike on his way to work on 24th December 2020 at 9.30 A.M. Patient sustained injury in the right arm and elbow. Patient was conscious and was taken to Anupama hospital, where he was given first aid and pain killers and sent back home. He was admitted to ESIC hospital on 26th of December 4.30 P.M. due to extreme pain and unable to move the arm. After seeing an orthopaedic surgeon, X-ray was done which revealed right Intra articular fracture of the distal humerus. Patient received surgical treatment, open reduction and internal fixation was done on 4th January 2021. Bandage was worn until 24th January 2021. after removal of the bandage physical therapy was started from 22nd February 2021 as suggested by physician.

### 2. METHODOLOGY

Physiotherapy treatment was started on 1<sup>st</sup> march by us. Before the physiotherapy treatment pre values were taken for Pain using VAS scale, MMT for muscle power of shoulder, elbow and wrist and upper extremity functional index (UEFI). Accessory joint motion of the involved and uninvolved elbow is compared to assess the limitations which is hindering the movement. Ultrasound is given to reduce the pain and oedema at the elbow joint. The patient was given AROM exercises. PROM pronation and supination is performed with elbow at 90° with the humerus stabilized. Heat is given in adjunct to facilitate ROM as it increases the tissue extensibility. The patient was given gentle mobilization of the elbow, gradually increase the range with each repetition. Followed by Muscle energy technique (MET) for elbow stiffness. Gentle stretching was also given. Gradual PRE exercises for the elbow was initiated for the elbow, forearm and wrist. For elbow flexion and extension strengthening began in pain free arcs of motion with light resistance with weights and later was progressed to resisted bands. Joint mobilization for the wrist and fingers were given to reduce the restriction in elbow flexion and extension. Early mobilization would ensure rapid recovery of wrist and

hand functions while avoiding the complications. Exercises for the shoulder were also given to maintain and strengthen the shoulder and scapular musculature. Active assisted exercise is then performed with the contralateral upper limb providing support where needed. The treatment would conclude by performing wrist curls using water bottle (500ml), ball squeeze exercises for the hand and rubber band exercises, and fine motor activities were given for strengthening intrinsic hand muscle and digits. At home, the patient is advised to perform all the exercises performed in the OPD again. Psychological counselling has been given so that we won't loss self-confidence to carry out his daily activities.

### **3. CONCLUSION**

Weakness of the muscle surrounding the fracture can persist long after full bone healing has occurred. Complex fracture rehabilitation may take 8-12 weeks. ROM exercises, strengthening exercises, stretching along with joint mobilisation are effective in making the person functionally independent.

During the 6 days of Physiotherapy sessions, we had with the patient, we both could see the improvement from day 1 until our last session together. He improved greatly during the course of treatment. The improvement came after joint mobilizations, functional exercises and the patient's positive attitude and the willingness to get back to normalcy.

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