

Role of Ring External Fixator in Open Intra-articular Distal Humerus Fracture
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INTRODUCTION:

The standard fixation for intra-articular distal humerus fracture is still open reduction and internal fixation (ORIF). However, high energy fractures of the distal humerus are almost always accompanied with soft tissue injuries and or vascular injuries which prevents the use of internal fixation. Ring external fixator is an effective alternative to ORIF in such fractures.

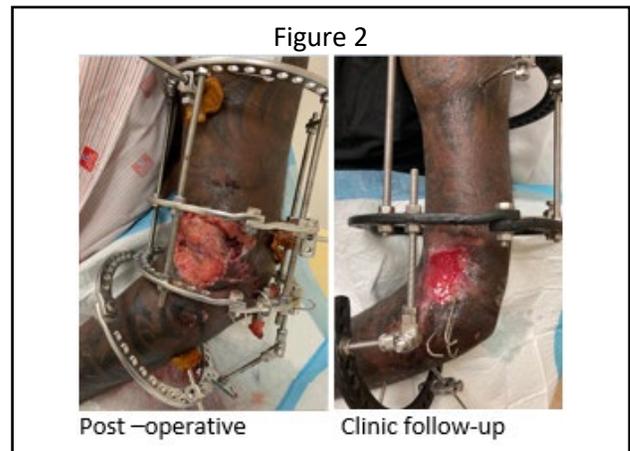
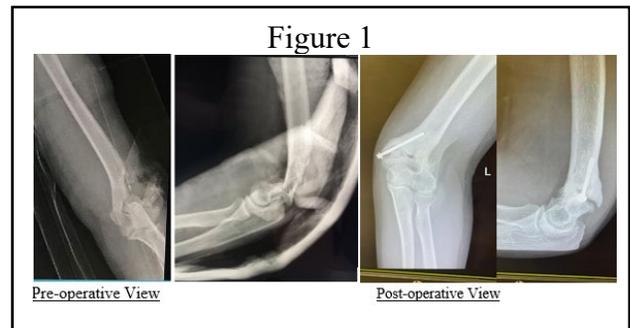
REPORT:

In our case, a 26-year-old man with a Gustillo Anderson Grade IIIB of distal humerus intra-articular fracture of non-dominant left upper limb with bone loss managed with aggressive wound debridement and cross elbow stabilization via a non-hinged ring external fixator. The fracture union achieved by 9 weeks and frame removed once fracture union achieved. Functional assessment of elbow noted range of motion of 45°-90° with no significant varus and valgus deformity.

Ring Fixator is a non-invasive external device which provides firm stabilisation of fracture at the same time allows for adequate soft tissue management. It provides continuous axial micro-movements in the frame which promotes callus formation while avoiding translation or angulation between the fragments¹. Ring external fixator in our patient achieved acceptable functional outcome and good alignment despite the severity of the fracture. The final outcome of elbow range of motion in our fixation was limited by the design of the ring fixator. However, patient was able to retain most of his elbow function while fracture was not complicated with common complications seen in ORIF.

Figure 1: Pre-operative and Post-operative Elbow X-ray

Figure 2: Clinical Picture with Ring External Fixator Construct



CONCLUSION:

For complex open distal humeral fractures, ring external fixator is an effective definitive fixation. To improve our construct, a hinged design would have enabled early rehabilitation of the elbow and improved final outcome.

REFERENCES:

1. Stein, H. & Cordey, J. & Mosheiff, Rami & Perren, Stephan. (1995). *Observations on the Stiffness of Neogenetic Bone, Produced by Distraction or Segment Transport, and It's Relationship to Bone Density.* 10.1007/978-3-642-79598-5_10.